Final Tiered Initial Study Checklist and
Mitigated Negative Declaration
for the

Construction and Operation of the Molecular Foundry

at
Ernest Orlando Lawrence Berkeley National Laboratory
Berkeley, California

University of California

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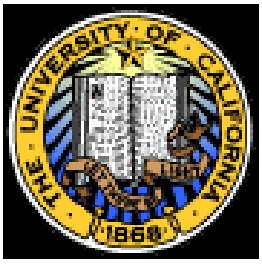

Molecular Foundry

Final Initial Study / Mitigated Negative Declaration

Summary

Project Description

Lawrence Berkeley National Laboratory (LBNL) proposes to construct and operate a six-story, approximately 86,500 gross square foot (gsf) Nanoscale Research Facility (Molecular Foundry building), and an adjacent 8,000 gsf partly below-grade Central Utility Plant building. The buildings would be located on an approximately 2½-acre site in the southeastern portion of the LBNL facility in the Oakland-Berkeley hills. The Molecular Foundry building would include laboratories, offices, and conference and seminar rooms; the Central Utility Plant would also serve as the foundation for 16 surface parking spaces. A new plaza and pedestrian bridges would connect or provide ready access between the proposed Molecular Foundry building and adjacent scientific buildings. The Proposed Action would extend Lee Road approximately 350 feet, and widen a portion of the road to accommodate two-way traffic. The Molecular Foundry would be staffed and/or used by an estimated 137 persons, of whom an estimated 59 would be staff persons, 36 would be students, and 42 would be visitors (i.e., visiting scientists) to the facility. The Molecular Foundry would be funded by the U.S. Department of Energy's (DOE) Office of Basic Energy Sciences. It is intended to advance nanosciences and nanotechnology research and development through collaborative interaction between diverse scientific disciplines and close proximity to LBNL's user facilities, especially its world-class computer, electron microscopy, and synchrotron radiation facilities.

The Proposed Project would include an amendment to the existing lease between the University and DOE to accommodate the building site. The lease is governed under the terms of the existing contract between The Regents and DOE for the operation and management of LBNL.

Project Objectives

The Proposed Project would support the research mission of the University of California by providing an interdisciplinary environment and consolidated state-of-the-art facilities for nano-scale scientific, engineering, and technological research. The Molecular Foundry would be a unique facility and is designed specifically to take advantage of LBNL's unique setting and resources. The Molecular Foundry laboratories would be user facilities, designed to attract scientists from universities, industry, and government laboratories worldwide. By functioning as a "portal" to LBNL's established major user facilities, the Foundry would also leverage existing nanoscience research capabilities at the Advanced Light Source, the National Center for Electron Microscopy (NCEM), and the National Energy Research Scientific Computing Center. The location and design of the Molecular Foundry would take advantage of proximity between the adjacent NCEM and materials science buildings to facilitate access and interaction among researchers and facilities.

Environmental Analysis

As a tiered document, the Initial Study for the project relies in part on the 1987 LRDP EIR, as amended, for: (1) a discussion of general background and setting information for environmental topic areas; (2) overall growth-related

issues; and (3) issues that were evaluated in sufficient detail in the 1987 LRDP EIR, as amended, for which there are no significant new information or changes in circumstances that would require further analysis. The Tiered Initial Study analyzes the potential impacts of the project and the adequacy of the existing environmental analysis in the 1987 LRDP EIR, as amended, with regard to the following environmental topic areas: (1) aesthetics, (2) agricultural resources, (3) air quality, (4) biological resources, (5) cultural resources, (6) geology and soils, (7) hazards and hazardous materials, (8) hydrology and water quality, (9) land use and planning, (10) mineral resources, (11) noise, (12) population and housing, (13) public services, (14) recreation, (15) transportation and traffic, (16) utilities and service systems, and (17) cumulative impacts.

Based on the analysis contained in the Tiered Initial Study, it was determined that for all resource areas, the project would not result in any significant impacts that cannot be mitigated to less-than-significant levels or are not sufficiently addressed by the 1987 LRDP EIR, as amended. In addition, LBNL found that the project could result in one new potentially significant environmental impact that was not previously identified in the 1987 LRDP EIR, as amended, but four project-specific mitigation measures included in the Tiered Initial Study would reduce this impact to a level where no significant impact could occur. A fifth mitigation measure is identified to further reduce a cultural resources impact that would be less than significant. Based on this analysis, LBNL prepared a Mitigated Negative Declaration.

Impacts and Mitigation Measures

Although there have never been reported sightings of Alameda whipsnakes (a state and federally designated special status species) on the LBNL site, and the project site is neither within designated critical habitat of the Alameda whipsnake nor contains classic whipsnake habitat characteristics, Alameda whipsnakes are known to inhabit the East Bay hills, and federally designated critical habitat for this species does exist in the nearby area. Consequently, in order to reduce any possibility that an Alameda whipsnake might unexpectedly be present on the site during construction, the following project-specific mitigation measures, identified in the IS/MND and hereby incorporated into the project, will reduce this impact to a less-than-significant level:

Molecular Foundry Mitigation Measure 1: ***Prior to the initiation of excavation, construction, or vehicle operation, the project area shall be surveyed by a designated monitor, trained in Alameda whipsnake identification and ecology by a qualified biologist, to ensure that no Alameda whipsnakes are present. This survey shall not be intended to be a protocol-level survey, but rather one designed to verify that no snakes are actually on site.***

Molecular Foundry Mitigation Measure 2: ***All on-site workers shall attend an Alameda whipsnake information session conducted by the designated monitor. This session shall cover identification of the species and procedures to be followed if an individual is found on site.***

Molecular Foundry Mitigation Measure 3: ***All lay-down and deposition areas shall be inspected each morning by the designated monitor to ensure that Alameda whipsnakes are not present. All construction activities that take place on the ground shall be performed in daylight hours. Vehicle speed on site shall not exceed 15 miles per hour. Construction materials, soil, construction debris, or other material shall be deposited only on areas where vegetation has been mowed and any snakes present would be readily visible.***

Molecular Foundry Mitigation Measure 4: ***The site is subject to annual vegetation management involving the close-cropping of all grasses and ground cover on the project area; this management shall be done prior to initiation of construction. Re-mowing shall be done if grass or other vegetation on the project site becomes high enough to conceal whipsnakes during the construction period.***

In addition, to further reduce an already less-than-significant impact in the unlikely event that significant archaeological resources are unearthed during excavation, the following project-specific mitigation measure is incorporated into the project:

Molecular Foundry Mitigation Measure 5: ***If an archaeological and paleontological artifact were discovered on-site during construction, all activities within a 50-foot radius would be halted and a qualified archaeological/paleontological monitor would be summoned within 24 hours to inspect the site. If the find were determined to be significant and to merit formal recording or data collection, time and funding would be required to salvage the material. Any archaeologically important data recovered during monitoring would be cleaned, catalogued, and analyzed, with the results presented in a report of finding that satisfies professional standards.***

All other impacts identified in the analysis were determined to be less-than-significant for the reasons set forth in the Initial Study / Mitigated Negative Declaration (IS/MND).

Environmental Review Process

The IS/MND was prepared in accordance with CEQA and the University of California procedures for Implementation of CEQA. The Initial Study for the project, in accordance with Section 15168 of the CEQA Guidelines, is tiered from the 1987 LRDP, as amended.

The draft IS/MND was circulated for agency and public review on December 10, 2002; comments were requested to be received by January 13, 2003. In consideration of requests by the City of Berkeley and individual members of the public, LBNL extended the comment period twice: first from January 13 to January 21, and finally from January 21 to February 5, 2003.

Comments and Responses

The draft IS/MND was reviewed by various state, regional, and local agencies, as well as by interested individuals and organizations. Comments that were received and responses to those comments are included in the Appendix A of this final IS/MND. In addition to a communication from the Governor's Office of Planning and Research acknowledging submittal and circulation of the Draft Tiered Initial Study, and a letter from the City of Berkeley requesting extension of the public review period, fourteen comment letters were received during the public review period and considered by The Regents. The letters did not raise any new environmental impacts that had not already been identified, analyzed, and mitigated to a less than significant level, as discussed in the Tiered Initial Study.

The San Francisco Bay Regional Water Quality Control Board (RWQCB) requested a better description of the cumulative watershed context in which the project would increase impermeable surface area, asked for additional information regarding the Strawberry Creek detention basin, and included several suggestions for stormwater treatment best management practices and stormwater runoff and treatment design. It did not identify any potentially significant impacts not previously analyzed and mitigated in the 1987 LRDP EIR, as amended, or in the IS/MND. In response, the final IS/MND provides additional information on cumulative watershed context and on the detention basin. It also confirms that the project's on-going design process will consider and incorporate as many best management practices and RWQCB's design suggestions as practicable.

The East Bay Municipal Utility District (EBMUD) proposed clarifying descriptive language regarding water service, identified several methods by which the project could further conserve water and minimize sewer flow, and requested additional information regarding sanitary sewer subbasin destination and stormwater infiltration/inflow (I/I) issues. It did not identify any potentially significant impacts not previously analyzed and mitigated in the 1987 LRDP EIR, as amended, or in the IS/MND. In response, the IS/MND adopts the suggested descriptive language on water service. In addition, it identifies additional areas where the project would conserve water and minimize sewer flow. It also confirms that the project's on-going design process will consider and incorporate the water and sewer conservation practices suggested by EBMUD. The IS/MND provides additional information on sanitary sewer subbasins and on I/I issues, including LBNL's own successful I/I program. A more refined calculation of project water needs in the final IS/MND resulted in a substantially lower estimate of water demand and projected sewer use.

The City of Berkeley's Toxics Management Division requested information on nanoscience and technology in general, asked for information about possible radioactive isotopes that would be used in research, wanted to know which other agencies have or would be reviewing the project's environmental documentation; it inquired about a Hazard Analysis Report, and requested more information regarding chemical inventories and potential air emissions. It did not identify any potentially significant impacts not previously analyzed and mitigated in the 1987 LRDP EIR, as amended, or in the IS/MND. In response, the IS/MND provides additional information about the research that would take place in the building, confirms that the use of radioactive materials would not be part of the project, and confirms that a Hazard Analysis Report would be completed and made available with completion of final project design. It also lists the agencies that have been provided the IS/MND for review, and identifies several locations in the IS/MND where much of the research and emissions information sought by the commentor can be found. A more precise methodology for determining air emissions conclusions is provided in IS/MND Appendix E.

Several individuals submitted letters on a wide variety of topics, which are generally categorized below. None of the commentors identified any potentially significant impacts not previously analyzed and mitigated in the 1987 LRDP EIR, as amended, or in the IS/MND:

Several individuals commented on the perceived need for an EIR for this project. In response, the IS/MND demonstrates that the IS/MND is appropriate per CEQA Guidelines and a case has not been made for an EIR to be prepared.

Several commentors argued for alternative project siting, both on and off-site of Berkeley Lab. The IS/MND reiterates how the project site is the only practicable site that meets project objectives.

Several individuals criticized the CEQA process and public involvement aspects of this proposed project. The IS/MND responds by identifying how the process met and often exceeded all applicable requirements of CEQA and the University.

Several individuals raised the issue of potential cumulative impacts of the project with LBNL, UC Berkeley, and other projects in the area. The IS/MND cites its cumulative impacts analysis, which thoroughly considers cumulative impacts issues and identifies the major projects in the area and otherwise addresses this issue in responses.

Several commentors raised concerns about earthquakes, fire, and disaster issues. The IS/MND responds by citing the relevant portions of the IS/MND analysis, which sufficiently covers these issues, and provides additional supporting information.

Several commentors were concerned with traffic impacts, particular to the Panoramic Hill Neighborhood. The IS/MND responds by citing the traffic analysis, which sufficiently covers these issues, and provides additional supporting information.

Several commentors asked for additional information on air emissions and risks. The IS/MND responds by citing the air and hazards analyses, and by providing additional supporting information in Appendix E.

Several commentors are concerned about the project's visual impacts. The IS/MND responds by citing the relevant portions of the IS/MND, and by providing additional supporting information, including a visual simulation from the Panoramic Hill Neighborhood in Appendix D.

One commentor questioned the methodology of the noise analysis. The IS/MND responds by explaining the methodology and the results of the analysis noise testing in greater detail.

Several commentors were concerned with future development in Strawberry Canyon and LRDP consistency. The IS/MND responds by citing the relevant portions of the IS/MND analysis, and by further describing how this information supports the conclusions of LRDP consistency. It also provides greater contextual information, including a USGS map and an aerial photograph as part of Appendix D.

Several commentors raised concerns about potential weapons research at the Molecular Foundry. The IS/MND responds by reiterating that weapons and classified research would not be conducted as part of the project.

TABLE OF CONTENTS

FINAL TIERED INITIAL STUDY CHECKLIST AND MITIGATED NEGATIVE DECLARATION FOR THE CONSTRUCTION AND OPERATION OF THE MOLECULAR FOUNDRY

Page

APPENDICES

LIST OF FIGURES

LIST OF TABLES

FINAL TIERED INITIAL STUDY CHECKLIST AND MITIGATED NEGATIVE DECLARATION FOR THE PROPOSED CONSTRUCTION AND OPERATION OF THE MOLECULAR FOUNDRY

UNIVERSITY OF CALIFORNIA
LAWRENCE BERKELEY NATIONAL LABORATORY

April 2003

I. PROJECT INFORMATION

1.	Project title:	CONSTRUCTION AND OPERATION OF THE MOLECULAR FOUNDRY
2.	Lead agency name and address:	UNIVERSITY OF CALIFORNIA LAWRENCE BERKELEY NATIONAL LABORATORY One Cyclotron Road Berkeley, CA 94720
3.	Contact person and phone number:	Jeff Philliber LBNL Environmental Planning Coordinator Telephone: (510) 486-5257
4.	Project location:	University of California Lawrence Berkeley National Laboratory Alameda County [City of Oakland[1]]
5.	Project sponsor's name and address:	University of California Lawrence Berkeley National Laboratory One Cyclotron Road Berkeley, CA 94720

6. Custodian of the administrative record for this project (if different from response to item 3 above.):
Same as Item No. 3 above.

[1] Lawrence Berkeley National Laboratory straddles the border between the cities of Berkeley and Oakland. The location of the proposed project is within the Oakland city limits.

7. Identification of previous EIRs relied upon for tiering purposes (including all applicable LRDP and project EIRs) and address where a copy is available for inspection.

   Lawrence Berkeley National Laboratory, *Site Development Plan EIR,* August 1987 (State Clearinghouse No. [19]85112610).

   Lawrence Berkeley National Laboratory, *Proposed Renewal of the Contract between the United States Department of Energy and The Regents of the University of California for Operation and Management of the Lawrence Berkeley National Laboratory,* Supplemental EIR, September 1992 (State Clearinghouse No. [19]91093068).

   Lawrence Berkeley National Laboratory, *Proposed Renewal of the Contract between the United States Department of Energy and The Regents of the University of California for Operation and Management of the Lawrence Berkeley National Laboratory,* Supplemental EIR Addendum, September 1997 (State Clearinghouse No. 91093068).

   Copies of these documents can be reviewed at:

   Berkeley Public Library – Central Library
   2090 Kittredge Street
   Berkeley, CA 94704

   Or, contact:

   Lawrence Berkeley National Laboratory
   One Cyclotron Road
   Berkeley, CA 94720
   Attn: Jeff Philliber
   Telephone: (510) 486-5257

II. PROJECT DESCRIPTION

1. Description of project: (Describe the whole action involved, including but not limited to physical characteristics, site, later phases of the project, and any secondary, support, or off-site features necessary for its implementation and site selection process. Attach additional sheets if necessary.)

   See attached Project Description.

2. Project Objectives:

   The Proposed Project would support the research mission of the University of California by providing an interdisciplinary environment and consolidated state-of-the-art facilities for nano-scale scientific, engineering, and technological research. This research deals with the understanding, manipulation, and manufacture of chemicals, structures, and other materials at the molecular or near-molecular level.

   The Molecular Foundry laboratories would be user facilities, designed to attract scientists from universities, industry, and government laboratories worldwide. This combination of advanced equipment, collaborative staff, and breadth across disciplines would allow users to explore the frontiers of nanoscience.

The Proposed Project would be a unique facility specifically intended and designed to take advantage of LBNL's unique setting and resources. These resources include the region's rich pool of scientists and researchers, especially those currently at LBNL and UC Berkeley, as well as the singular research facilities at LBNL. By functioning as a "portal" to LBNL's established major user facilities, the Foundry would also leverage existing nanoscience research capabilities at the Advanced Light Source, the National Center for Electron Microscopy (NCEM), and the National Energy Research Scientific Computing Center. Furthermore, the project would provide significant educational and training opportunities for students and postdoctoral fellows as the "first true generation" of nanoscientists. Location and design of the Molecular Foundry would take advantage of proximity between the adjacent NCEM and materials science buildings to facilitate access and interaction among researchers and facilities.

The new building, with its state-of-the-art laboratories, would include modern safety features and design and would incorporate environmentally sensitive features.

3. Surrounding land uses and environmental setting: Briefly describe the project's surroundings:

See attached Project Description.

4a. Discretionary approval authority and other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

Agency	Approval or Permit
U.S. Department of Energy	NEPA Lead Agency project approval and funding approval, adoption of Mitigated Environmental Assessment and FONSI
University of California, and The Regents of the University of California	CEQA Lead Agency adoption of Tiered Mitigated Initial Study and Mitigated Negative Declaration and project design approval
Bay Area Air Quality Management District (BAAQMD)	Emergency Generator Permit (Authority to Construct and Permit to Operate)[1]; Point Source Emission Permit, if necessary[2]
State Water Resources Control Board / Regional Water Quality Control Board	Stormwater Construction Notice of Intent (NOI)[3]

1 Project would include a 750-kilowatt diesel-powered emergency generator.

2 The need for a Point Source Emission Permit would be determined by the BAAQMD, based on the needs of individual researchers who would eventually occupy the Molecular Foundry lab spaces.

3 Stormwater construction notifications are necessary for construction sites larger than one acre; the Molecular Foundry site is approximately two and one-half acres. The NOI must include information about preparing a construction Stormwater Pollution Prevention Plan (SWPPP) and associated best management practices.

4b. Public agencies that may require notification regarding the project or project-related modification to existing permits:

Agency	Approval or Permit
State Water Resources Control Board / Regional Water Quality Control Board	Update of current Stormwater Pollution Prevention Plan (SWPPP), if necessary
East Bay Municipal Utility District	Wastewater Discharge Permit (current site-wide permit adequate; letter notification of change in operations would be needed)

5. Consistency with the LRDP: (Describe the project's consistency with: the scope of development projected in the LRDP; campus and community population levels projected in the LRDP; LRDP designation for this type of project; and applicable policy objectives and goals of the LRDP).

The Regents of the University of California approved a Long-Range Development Plan (LRDP) for LBNL in 1987. While this Plan and its accompanying EIR anticipate development to an unspecified year ("20XX"), the Addendum to the Supplemental site-wide EIR adopted in 1997 analyzes LRDP-related buildout impacts through a Contract extension year of 2007.

The LRDP anticipates that growth on the main LBNL site could increase from approximately 1.59 million gross square feet (gsf) in 1987 to approximately 2.0 million gsf at build-out. There are currently about 233,500 gsf available for development under this projection. The proposed Molecular Foundry building and accompanying Central Utility Plant building would comprise approximately 94,500 gsf, which would leave approximately 140,000 gsf remaining below the level proposed in the 1987 LRDP, and analyzed in the LRDP EIR, as amended.

The LRDP projects an increase in total population growth at LBNL from approximately 2,850 in 1987 to approximately 4,750 at buildout.[2] LBNL is currently about 400 people below its anticipated population at buildout. The proposed Molecular Foundry would add approximately 140 staff, students, and visitors to LBNL, which would leave LBNL approximately 260 persons below the population level at buildout proposed in the 1987 LRDP, and analyzed in the LRDP EIR, as amended.

The Proposed Project is consistent with land use designations, goals, and objectives set forth under the LRPD and considered and approved by The Regents. The LRDP designates the proposed project site for a scientific building, and designates the general area of the proposed site as partially developed "open space." The project would site the Molecular Foundry building in this location between two existing buildings and would surround it with open space features as prescribed in the LRDP. A portion of the proposed Molecular Foundry building would also be in a "buffer zone" area as identified in the LRDP. The LRDP does not prohibit new buildings in buffer zones, but encourages design that addresses, enhances and/or upholds special constraints and amenities on such sites.

The Proposed Project affirms and is consistent with the LRDP Goals and Objectives approved by The UC Regents. The site is adjacent to both utility corridors and traffic/transit corridors. All support services have adequate capacity to serve the new building at this location. The Proposed Project is consistent with the LRDP's Design Guidelines as approved by The UC Regents.

Based on the consistency of the Proposed Project with the LRDP Goals and Objectives, and based on the fact that the Proposed Project would be within the space and population projections presented in the 1987 LRDP EIR, as amended, the Proposed Project is within the scope of the LRDP as evaluated in the LRDP EIR, as amended.

III. ENVIRONMENTAL REVIEW AND APPROVAL

1. Tiering from LRDP EIR, as Amended

This environmental analysis is a tiered Initial Study and proposed Mitigated Negative Declaration (IS/MND) for the proposed Molecular Foundry project (Proposed Project). The IS/MND is tiered from the following three programmatic, site-wide CEQA documents:

- *Site Development Plan* EIR, August 1987 (State Clearinghouse No. [19]85112610);
- *Proposed Renewal of the Contract between the United States Department of Energy and The Regents of the University of California for Operation and Management of the Lawrence Berkeley National Laboratory*, Supplemental EIR, September 1992 (State Clearinghouse No. [19]91093068); and

[2] The portion of the LBNL population identified as being located on the UC Berkeley Campus actually circulates regularly between Campus and LBNL main site facilities. Consequently, it cannot be precisely determined how much of the LBNL staff is on-site, on the UC Berkeley Campus, and off-site at any given time. For this reason, aggregate or total rather than site-specific population figures are used for planning purposes to avoid population undercounting.

- *Proposed Renewal of the Contract between the United States Department of Energy and The Regents of the University of California for Operation and Management of the Lawrence Berkeley National Laboratory*, Supplemental EIR Addendum, September 1997 (State Clearinghouse No. [19]91093068).

These documents are referred to herein as the "LRDP EIR, as amended."

The Proposed Project IS/MND is tiered from the LRDP EIR, as amended, in accordance with Sections 15152 and 15168 of the CEQA *Guidelines*, and Public Resource Code Section 21094. The LRDP EIR, as amended, is a Program EIR, prepared pursuant to Section 15168 of the CEQA Guidelines (Title 14, California Code of Regulations, Sections 15000 et seq.). The LRDP EIR, as amended, analyzes full implementation of uses and physical development proposed under the 1987 LRDP through the year "20XX," which is an indeterminate horizon year flexibly projected to occur within the current century. Measures are identified in the LRDP EIR, as amended and adopted by The UC Regents, to mitigate the significant adverse project and cumulative impacts associated with that growth.

The CEQA concept of "tiering" refers to the coverage of general environmental matters in broad program-level EIRs, with subsequent focused environmental documents for individual projects that implement the program. This environmental document is tiered from the LRDP EIR, as amended, and concentrates on project-specific issues. CEQA and the CEQA *Guidelines* encourage the use of tiered environmental documents to reduce delays and excessive paperwork in the environmental review process. This is accomplished in tiered documents by eliminating repetitive analyses of issues that are adequately addressed in the Program EIR and by incorporating those analyses by reference.

Section 15168(d) of the CEQA *Guidelines* provides for simplifying the task of preparing environmental documents on later parts of the program by incorporating by reference factors that apply to the program as a whole. Consistent with CEQA *Guidelines* Section 15152(d), where an EIR has been prepared or certified for a program or plan, the environmental review for a later activity consistent with the program or plan should be limited to effects that were not analyzed as significant effects in the prior EIR or that are susceptible to substantial reduction or avoidance.

Accordingly, the tiering of the environmental analysis for the Proposed Project allows this Tiered IS/MND to rely on the LRDP EIR, as amended, for the following:

- a discussion of general background and setting information for environmental topic areas;
- overall growth-related issues;
- issues that were evaluated in sufficient detail in the LRDP EIR, as amended, for which there is no significant new information or change in circumstances that would require further analysis; and
- long-term cumulative impacts assessment.

The purpose of this Tiered IS/MND is to evaluate the potential environmental impacts of the Proposed Project with respect to the LRDP EIR, as amended.

2. Scope of the Tiered Initial Study and Mitigated Negative Declaration

This Tiered IS/MND uses the analysis of general matters contained in the LRDP EIR, as amended, and concentrates on issues specific to the proposed Molecular Foundry project. Based on the analysis presented in this Tiered IS/MND, it has been determined that the Proposed Project would not result in any potentially significant impacts that cannot be mitigated to a less-than-significant level or are not sufficiently addressed by the LRDP EIR, as amended. None of the conditions described in CEQA or the CEQA *Guidelines* calling for preparation of a subsequent EIR have occurred.

3. Public and Agency Review

The Draft Tiered IS / Mitigated Negative Declaration was circulated for public and agency review from December 10, 2002 to January 13, 2003. LBNL granted two subsequent extensions to the public and agency review period to accommodate requests for additional review time and ultimately closed the review period on February 5, 2003. Copies of the tiered IS/MND, along with programmatic tiering documents, were made available for review at the following locations:

Lawrence Berkeley National Laboratory Main Library, Building 50, room 4034, Lawrence Berkeley National Laboratory, One Cyclotron Road, Berkeley, California (510) 486-5621.

Berkeley Public Library, 2nd floor Reference Desk, 2090 Kittredge Street, Berkeley, California.

On-line at: http://www.lbl.gov/Community/pdf/env-rev-docs/MND.pdf

To have been considered in the decision making for this project, all comments on the Draft Tiered IS/MND were to have been received by February 5, 2003 at the following address:

Jeff Philliber, Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90K
Berkeley, California 94720

The State of California's Office of Planning and Research State Clearinghouse acknowledged receipt of the Initial Study/Mitigated Negative Declaration and on December 16, 2002 issued State Clearinghouse number 2002322051 for this project.

IV. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality	☐ Land Use/Planning
☐ Mineral Resources	☐ Noise	☐ Population/Housing
☐ Public Services	☐ Recreation	☐ Transportation/Traffic
☐ Utilities/Service Systems	☐ Mandatory Findings of Significance	

Based on the analysis presented in this Tiered Initial Study, it has been determined that for all resource areas, the Proposed Project would not result in any significant impacts that cannot be mitigated to a less-than-significant level or are not sufficiently addressed by the LRDP EIR, as amended. The conclusion based on this Tiered Initial Study is that the project would incrementally contribute to certain impacts previously identified as significant in the LRDP EIR, as amended, but that for such impacts, no new mitigation measures, other than those previously identified in the LRDP EIR, as amended, are required. The Proposed Project would result in a new potentially significant biological resources impact, but Proposed Project-specific mitigation measures would reduce this impact to a less-than-significant level. Therefore, preparation of a Mitigated Negative Declaration is appropriate.

V. DETERMINATION: (To be completed by the Lead Agency)

On the basis of the initial evaluation that follows:

☒ On the basis of the Initial Study evaluation that follows, I find that the Proposed Project is within the scope of the LRDP EIR, as amended. Pursuant to CEQA Guideline 15168(c)(1), an Initial Study has been prepared, and that Initial Study has determined that, with the incorporation of mitigation measures, including mitigation measures set forth in the LRDP EIR, as amended, there will not be a significant effect on the environment because those mitigation measures have been incorporated into the project. Accordingly, a TIERED MITIGATED NEGATIVE DECLARATION WILL BE PREPARED. A tiered EIR will not be prepared because, pursuant to CEQA Guideline 15152(f), the project will not cause any significant effects on the environment that were not evaluated in the LRDP EIR, as amended, and also because there are no project changes, changes in circumstances, or new information requiring a further EIR pursuant to Guideline 15162.

VI. PROJECT DESCRIPTION

INTRODUCTION

Lawrence Berkeley National Laboratory (LBNL) proposes to build an approximately 94,500 gross square foot (gsf) Molecular Foundry project, to be funded by the U.S. Department of Energy (DOE), as a part of DOE's Office of Basic Energy Sciences. The approximately two and one-half acre site would be located in the southeastern portion of the LBNL facility in the Oakland-Berkeley hills (see Figures 1 and 2). The site is on mostly undeveloped slopes between Building 72, which is the National Center for Electron Microscopy (NCEM), and Building 66, which is the Surface Science and Catalysis Laboratory (SSCL) (see Figure 3).

The Molecular Foundry would consist of two adjacent buildings: a six-story, 86,500-gsf building that includes laboratories, offices, and conference and seminar rooms; and an 8,000-gsf utility plant that would also serve as the foundation for approximately 16 surface parking spaces. A new plaza and pedestrian bridges would connect or provide ready access between the proposed Molecular Foundry building and the SSCL and NCEM. The project would extend Lee Road approximately 350 feet from the southwest corner of Building 66 in a north/northwest direction that would connect directly to the west side of the complex from Lawrence Road, and extend northward to the parking lot for Building 31. See Figure 4 for the footprint of the proposed Molecular Foundry Buildings (and proposed utilities). The project would also widen an existing 160-foot portion of Lee Road southwest of Building 62. The Molecular Foundry would be staffed by an estimated 137 persons, of which an estimated 59 would be staff persons, 36 would be students, and 42 would be visitors (visiting scientists) to the Foundry. The Proposed Project would require removal of an existing paved 18-space parking lot and retaining walls, as well as excavation into an undeveloped hillside. Approximately two dozen mature trees would be removed, along with approximately one dozen saplings. The project would replant or replace trees, generally in-kind and in or around the site. LBNL anticipates it will use the soil excavated for the Molecular Foundry to construct the new Lee Road extension and widen the existing roadway. See Figure 5 for the approximate area of disturbance.

This project would be a resource for DOE's participation in the National Nanotechnology Initiative (NNI). Nanotechnology is the design, fabrication, characterization, and use of materials, devices, and systems through the control of matter at the nanometer-length scale.[3] Nanoscience is research concerned with physical objects at the nanometer-length scale. Nanoscience will be instrumental in developing the understanding of the nano-scale building blocks and the methods by which they are assembled into multi-component devices (see examples of applications, below).

The Molecular Foundry would integrate researchers from various fields, including materials science, chemistry, biology, and computational science, to work and conduct research collaboratively. A few examples of the types of products and innovations hoped for with this sort of collaborative nanoscience and technology at the proposed Molecular Foundry include:

[3] The term "nanometer" describes a length of one-billionth of a meter.

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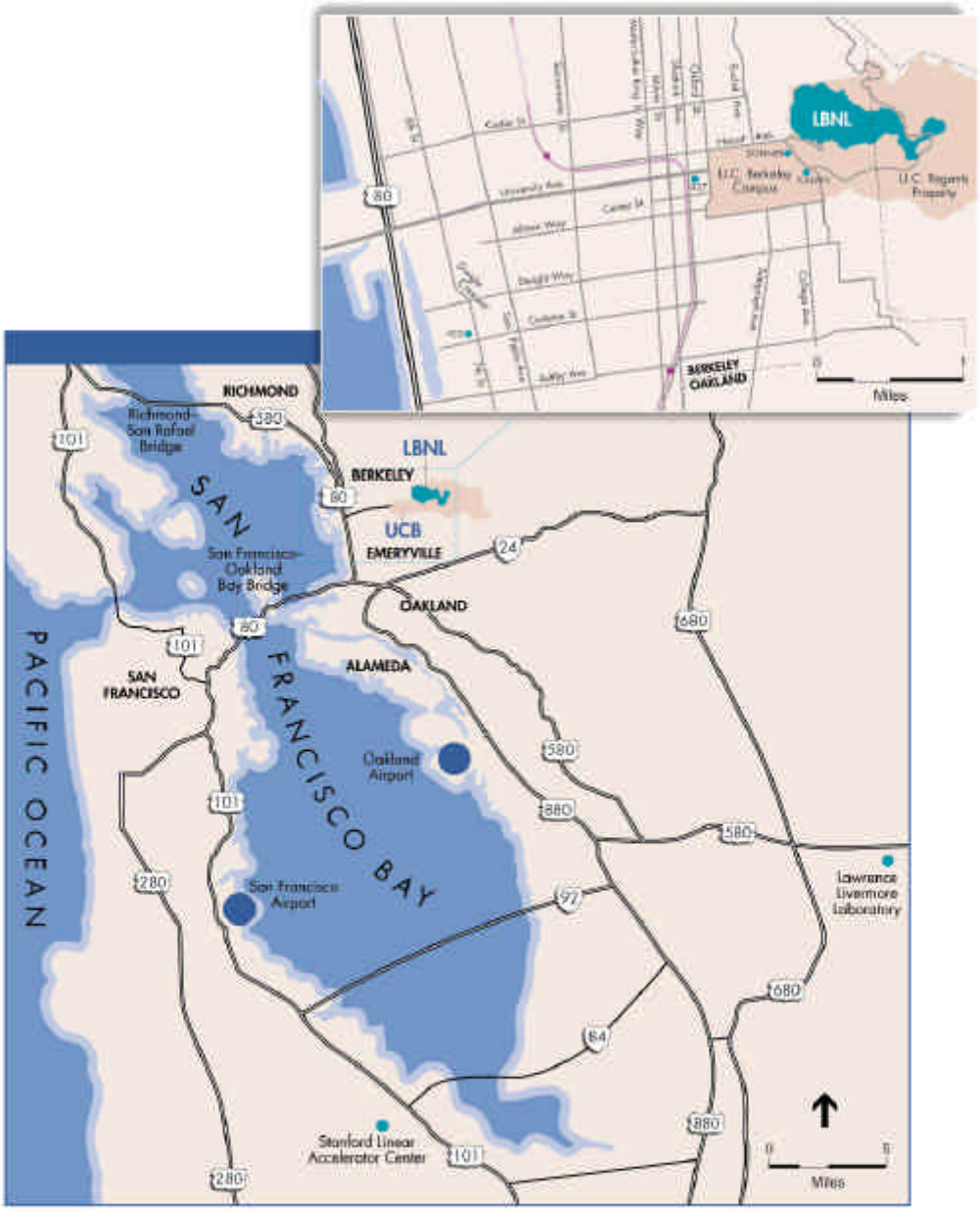
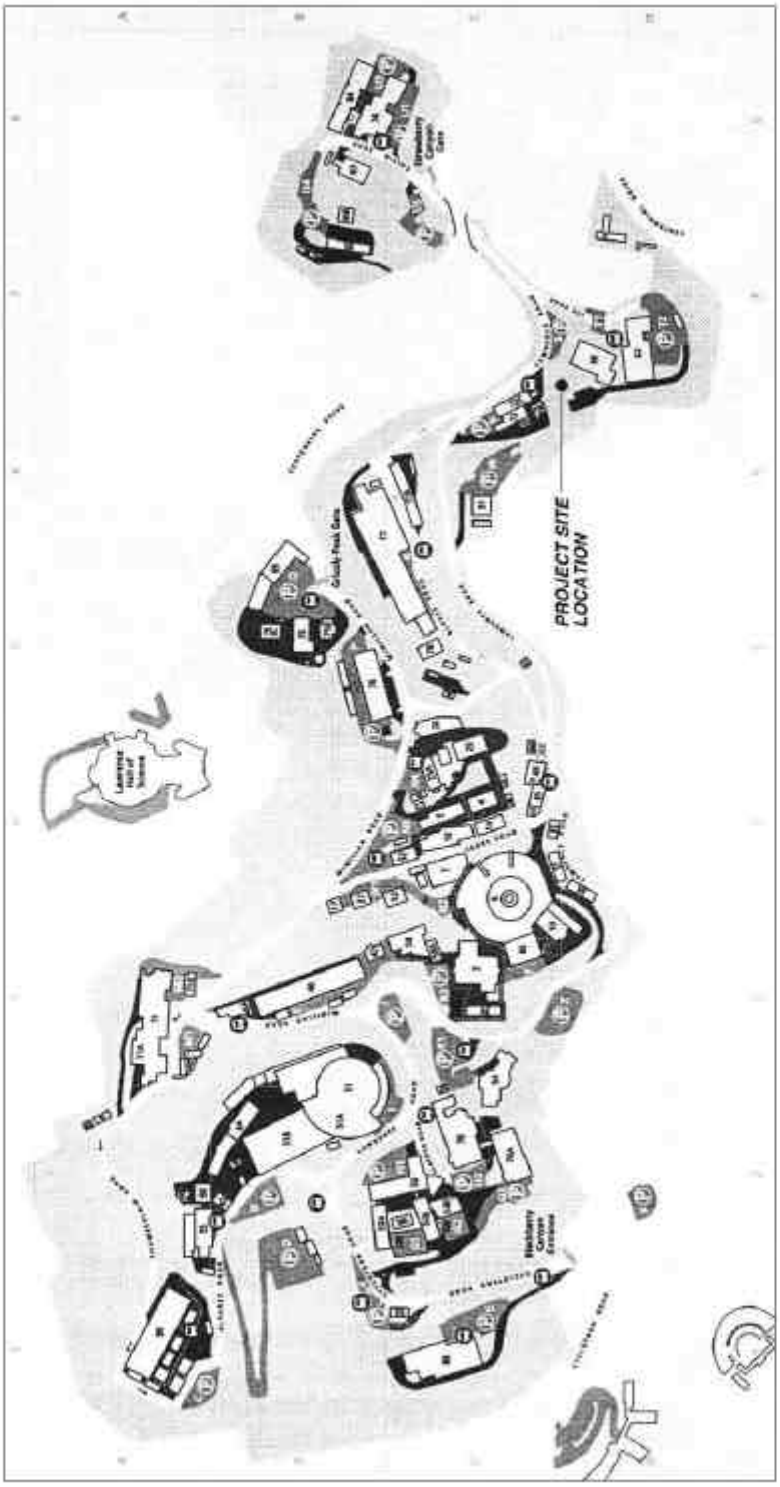


SOURCE: Lawrence Berkeley National Laboratory (2002)

LBNL Molecular Foundry / 202211 ■

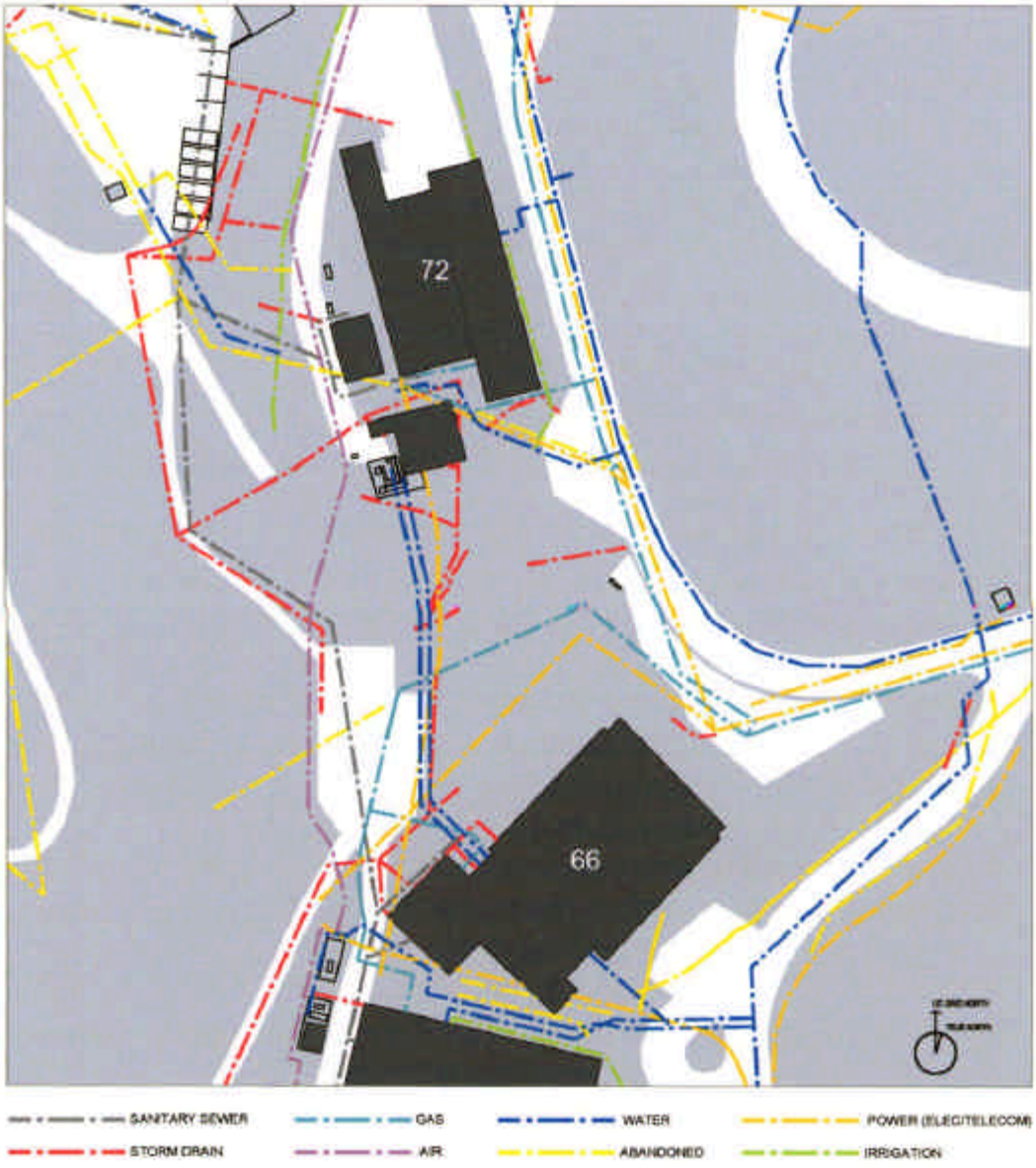
Figure 1
Regional Location Map



LBNL Molecular Foundry / 202211 ■

Figure 2
Lawrence Berkeley National Laboratory, Berkeley, CA
Site Location Map

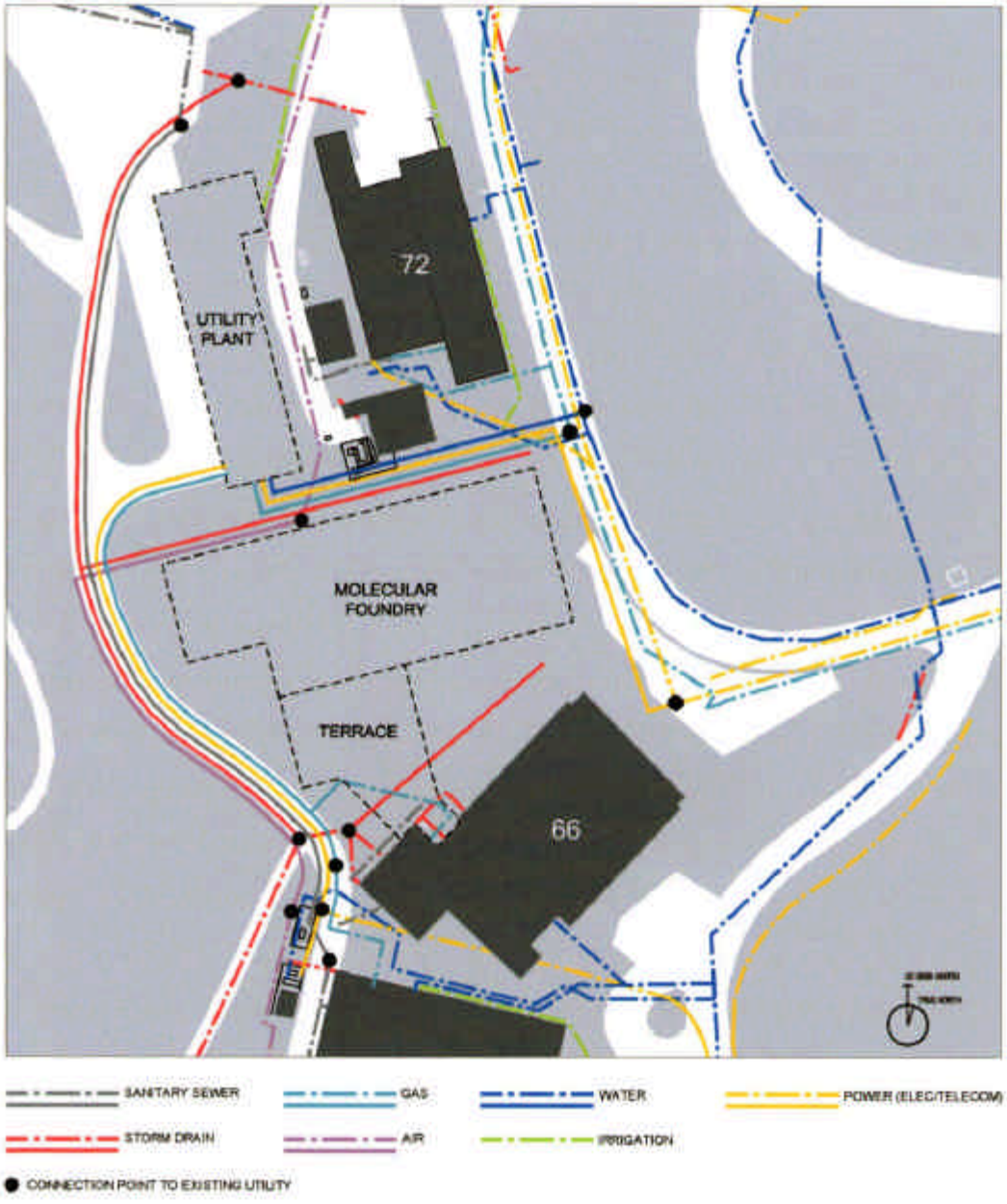
SOURCE: Lawrence Berkeley National Laboratory (2002)



SOURCE: Lawrence Berkeley National Laboratory (2002)

LBNL Molecular Foundry / 202211 ■

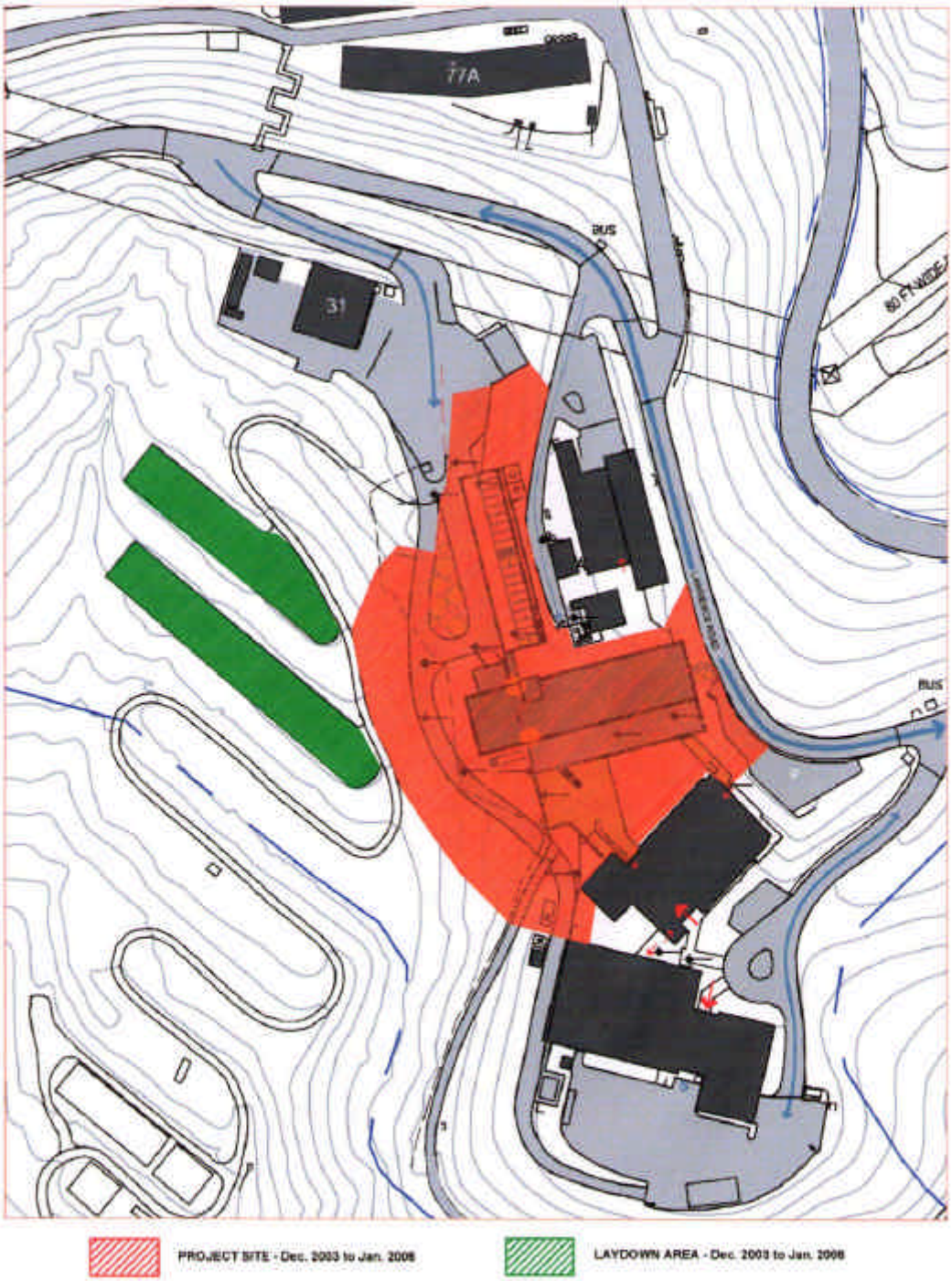
Figure 3
Existing Project Site
with Existing Utilities



SOURCE: Lawrence Berkeley National Laboratory (2002)

LBNL Molecular Foundry / 202211 ■

Figure 4
Proposed Molecular Foundry Footprint and Proposed Utilities



SOURCE: Lawrence Berkeley National Laboratory (2002)

LBNL Molecular Foundry / 202211 ■

Figure 5
Area of Disturbance for Construction of the Molecular Foundry

- Inexpensive and accessible terabyte-scale computer memories for personal computers and electronic devices;
- Quantum computers capable of complex, enormous tasks such as cryptography and climate modeling;
- Compact, ultrasensitive, broad-spectrum chemical and biological sensors for homeland security protection of the food and water supply, and for diagnosis of disease;
- Remote sensing devices;
- High-efficiency machine lubricants for increased efficiency and performance;
- Light-weight, durable materials;
- Low-cost, high-efficiency photovoltaic cells for increased energy self-sufficiency;
- Ultrahigh-selectivity catalysts for energy-efficient, low-waste production of products for industry and consumer use;
- Biologically-based devices and energy transduction systems for increased efficiency;
- Nano-scale (and thereby highly selective, effective, and safer) drug delivery agents, biomedical, and microsurgical devices;
- Efficient, durable displays for electronic devices;
- New instruments to image and manipulate atoms, molecules, and small particles for miniaturization of devices and instruments;
- Faster, more compact computer chips.

The proposed Molecular Foundry laboratories would be designed and constructed to facilitate research activities in a wide variety of fields required for progress in this new area of science. These labs would support a broad research effort focusing on "hard" nanometer-sized materials (e.g., rigid, static, structural elements such as nanocrystals, tubes, and lithographically patterned structures) as well as "soft" nanometer-sized materials (e.g. flexible, dynamic, organic materials such as polymers, dendrimers, DNA, proteins, and whole cells).

The Molecular Foundry would house six facilities: 1) nanofabrication, 2) inorganic nanostructures, 3) organic, polymer/biopolymer synthesis, 4) biological nanostructures, 5) theory, and 6) imaging and manipulation. These facilities would be equipped with state-of-the-art instruments and would be staffed by full-time scientists and technicians. They would function as user facilities, available to scientists from universities, industry, and government laboratories whose research proposals have been peer-reviewed by a study panel. This combination of equipment, collaborative staff, and disciplines would allow users a highly interdisciplinary approach.

The project site is located in LBNL's Materials and Chemistry Research Area. LBNL's 1987 Long Range Development Plan (LRDP) anticipates construction of a 30,000-gsf building at the project site. The proposed facility falls within the site-wide space projections of the1987 LRDP.[4] The project description of the proposed Molecular

[4] For illustrative purposes, the 1987 LRDP considered construction of a 30,000-gsf building at the project site, a 2,000-gsf addition to Building 62, and removal of 1,200 gsf of space, however, these construction projections are identified in the LRDP as serving "for general estimating purposes only" and do not represent a commitment to a particular project, program, or planning area. The University's LRDP findings are based on LBNL-wide or aggregate space projections.

Foundry includes all relevant mitigation measures from the programmatic LRDP EIR, as amended, from which this analysis is tiered.

PARCEL LEASE AMENDMENT

The Proposed Project would include an amendment to the existing lease between the University as landlord and the U.S. Department of Energy (DOE) as tenant to accommodate the building site. The lease is governed under the terms of the existing contract between The Regents and DOE for the operation and management of LBNL. This contract is reviewed for CEQA purposes in the 1992 Supplemental EIR and 1997 Addendum to the 1987 LRDP EIR, as amended.

The Molecular Foundry site and its surrounding environs currently occupy three existing parcels: Parcel 13, Parcel 13A, and Parcel 19A; the site also includes an area of approximately 0.21 acres that is owned by the UC Regents within LBNL-managed lands but is not currently leased by DOE. As part of the proposed project, the aforementioned parcels and the currently unleased area would be consolidated into a new parcel for leasing purposes: Parcel 28. Parcel 28 would comprise approximately five acres and would include the area containing existing Buildings 31, 66, 72, 72A, 72B, and 72C. Parcel 28 would be leased for a period of 50 years, which is the standard length of time for a parcel lease between the University and DOE. This amendment to the existing lease would be an administrative transaction that would not have any material or physical effects on the environment or public resources.

LOCATION AND EXISTING CONDITIONS

The proposed project site is located in the southeastern portion of LBNL in the Oakland-Berkeley hills, within the City of Oakland, on mostly undeveloped slopes between LBNL Buildings 72 and 66 (see Figures 1, 2, and 3, and Appenex D). The site also includes an existing paved parking lot with 18 striped parking spaces and a retaining wall, and an undeveloped downslope area extending from Lawrence Road along the northern side of Building 31 and the western side of Building 72. With the exception of the parking lot and a pathway along the eastern edge, the project site is covered with grasses and a variety of other plants.

West of the site are a chain-link fence and corporation yard, and further west are the University of California at Berkeley campus, Strawberry Creek, and the Panoramic Hill neighborhood. To the north are LBNL facilities, including the Grizzly Peak substation and undeveloped hillsides, as well as the Lawrence Hall of Science. Further north are residential neighborhoods in the City of Berkeley and the Tilden Regional Park. LBNL facilities, including LBNL's Human Genome Laboratory and the University of California's Botanical Garden, lie to the east. University of California-owned lands, regional open space areas, and the Claremont neighborhood of Oakland all lie to the south. The nearest residences are in the Panoramic Hill neighborhood of Berkeley, which is approximately one-third mile south of the project site at its closest point.

The project site is currently accessible from the southwest by Lee Road, which ends southwest of Building 66, and from the Building 66 back parking lot; to the east from Lawrence Road; and from the north by the Building 31 driveway and parking lot, via a dirt road that connects the Building 31 and Building 66 back parking areas. The site is within LBNL's vegetation control area, and as a result, grasses and plants are kept at a minimum height during fire season. As another component of the Lab's Vegetation Management Plan, non-native trees are removed within 100 feet of Buildings 62 and 66.

PROPOSED PROJECT

OPERATIONS

Staffing

The Molecular Foundry would be occupied by approximately 137 staff and students. Staff includes directors; scientific, technical, and administrative personnel; and visiting scientists. LBNL estimates that approximately 24 of these future Molecular Foundry staff are currently employed within the LBNL site; these would contribute to filling the projected 59 new staff positions. In addition, 42 visiting scientists would occupy the Molecular Foundry building along with an estimated 36 students and post-doctoral fellows.

It is assumed that the estimated 24 current LBNL staff who would join the Molecular Foundry from existing positions at LBNL would create vacancies that would most likely be filled within one year of their leaving. For that reason, all 137 staff positions are considered in the analysis for impacts. The sole exception to this is the six Directors, who would not be replaced and who would likely retain their office and laboratory spaces in their current, non-Molecular Foundry locations in addition to claiming Molecular Foundry occupancy space.

TABLE 1
ANTICIPATED MOLECULAR FOUNDRY STAFF

Category	Molecular Foundry Staffing Levels[a]
Directors	6
Scientific Staff	25
Technical Staff	18
Administrative Staff	10
Visiting Scientists	42
Students / Post Docs	36
Total	**137**

[a] Numbers are estimates and may be approximate.

SOURCE: Lawrence Berkeley National Laboratory (2002)

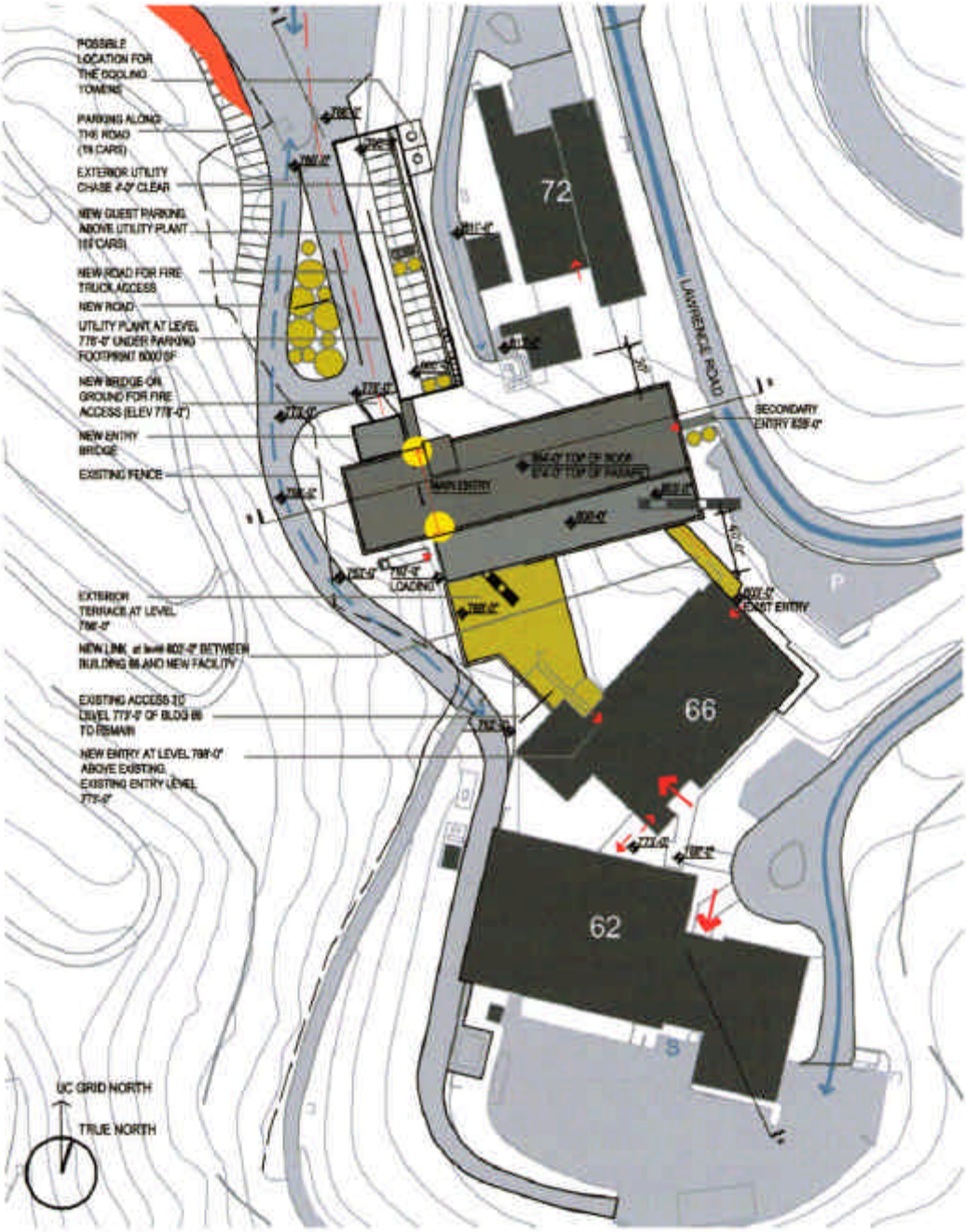
DESIGN CONSIDERATIONS

Building Design

The Proposed Project would consist of two buildings, a six-story, approximately 86,500-gsf Molecular Foundry building and an approximately 8,000-gsf subsurface Central Utility Plant building (see Figure 6) or a total approximate building area of 94,500 gsf. The Molecular Foundry project would include both buildings and other proposed site improvements and would include wet and dry laboratories, laboratory support facilities, equipment

rooms, conference/seminar rooms, and offices. In addition, specialty rooms consisting of controlled temperature rooms, low vibration rooms, and "clean" rooms would be included. Table 2, below, provides a summary of proposed building uses.

Laboratory suites totaling approximately 28,500 assignable square feet (sf) would provide the Molecular Foundry with wet and dry laboratories, scientific support equipment space, and shared workstations for laboratory technicians. Private offices and workstations areas would be provided for employees, visitors, and students. As stated above, the Molecular Foundry would house six facilities (see Figure 7) designed to promote inter-disciplinary approaches. The first floor, concrete slab-on-grade, would accommodate isolated, vibration-controlled, mass dampening equipment foundations for the Imaging and Manipulation Laboratory. All laboratories would be constructed as semi-clean room space, with controls to maintain the pressure in the labs with respect to adjacent vestibules. The laboratory spaces would also be constructed to easily adapt to changing research needs for size, layout, temperature and pressure control, cleanliness, and utilities. The Foundry would include 48 fume hoods associated with its proposed laboratories. All fume hoods would exhaust to the roof and would meet all applicable vertical velocity and stack height requirements. The expected useful life of the building would be 50 years. Figures 8, 9, and 10 provide proposed floor plans.



SOURCE: Lawrence Berkeley National Laboratory (2002)

LBNL Molecular Foundry / 202211 ■

Figure 6
Molecular Foundry Site Plan

TABLE 2

MOLECULAR FOUNDRY BUILDING SUMMARY

Building Level	General Function	Square Feet (sq. ft.)	Description of Facilities
4	Organic Polymer/Bio-polymer synthesis	13,920 sq. ft.	Visitor offices, administrative offices, conference room, interaction room, visitor lab, chromatography lab, spectrography lab, cold room, synthesis labs.
3	Biological Nanostructures	13,920 sq. ft.	Visitor offices, administrative offices, conference room, interaction room, visitor lab, culture room, cell handling, optical characterization lab, warm room, freezer/storage room, cold room, glass wash room, synthesis labs, characterization/application lab, instrument lab.
2	Inorganic Nanostructures	13,920 sq. ft.	Visitor offices, administrative offices, conference room, interaction room, chemical vapor lab, dry furnace lab, visitor lab, dry computer room, pulsed laser deposition lab, wet lab/characterization lab control, flexible space.
1	Theory	14,920 sq. ft.	Main entrance, receptionist, seminar room, administrative offices for Program Director and staff, visitor offices, post-doctoral student space. Will also include link (open walkway and stairs) to Building 66 at first and second floors, and pedestrian link (open stairway) from Lawrence Road.
Lower Level 1	Nanofabrication Labs	17,100 sq. ft.	Interaction and conference room, clean rooms, administrative/staff offices for imaging and nanofabrication offices, clean rooms, chemical storage, gowning area.
Lower Level II	Imaging and Manipulation Labs	12,720 sq. ft.	Atomic manipulation UHV system, SPM/EM for transport measure, visitors' labs, main analysis lab, atomic resolution UHV NC-AFM, microwave AFM, showers/lockers, shipping/receiving, flammable storage, cylinder holding, janitorial supply room, prototype/instrument test lab, NMR lab.
SUBTOTAL		86,500 sq. ft.	
N/A	Central Utility Plant	8,000 sq. ft.	HVAC cooling towers, emergency generator, electrical substations, treated water fluid coolers, water heaters and chillers, an office/shop, treated water system, compressed air system, de-ionized water system, etc.
TOTAL	(NA)	94,500 sq. ft.	(NA)

SOURCE: Lawrence Berkeley National Laboratory (2002)

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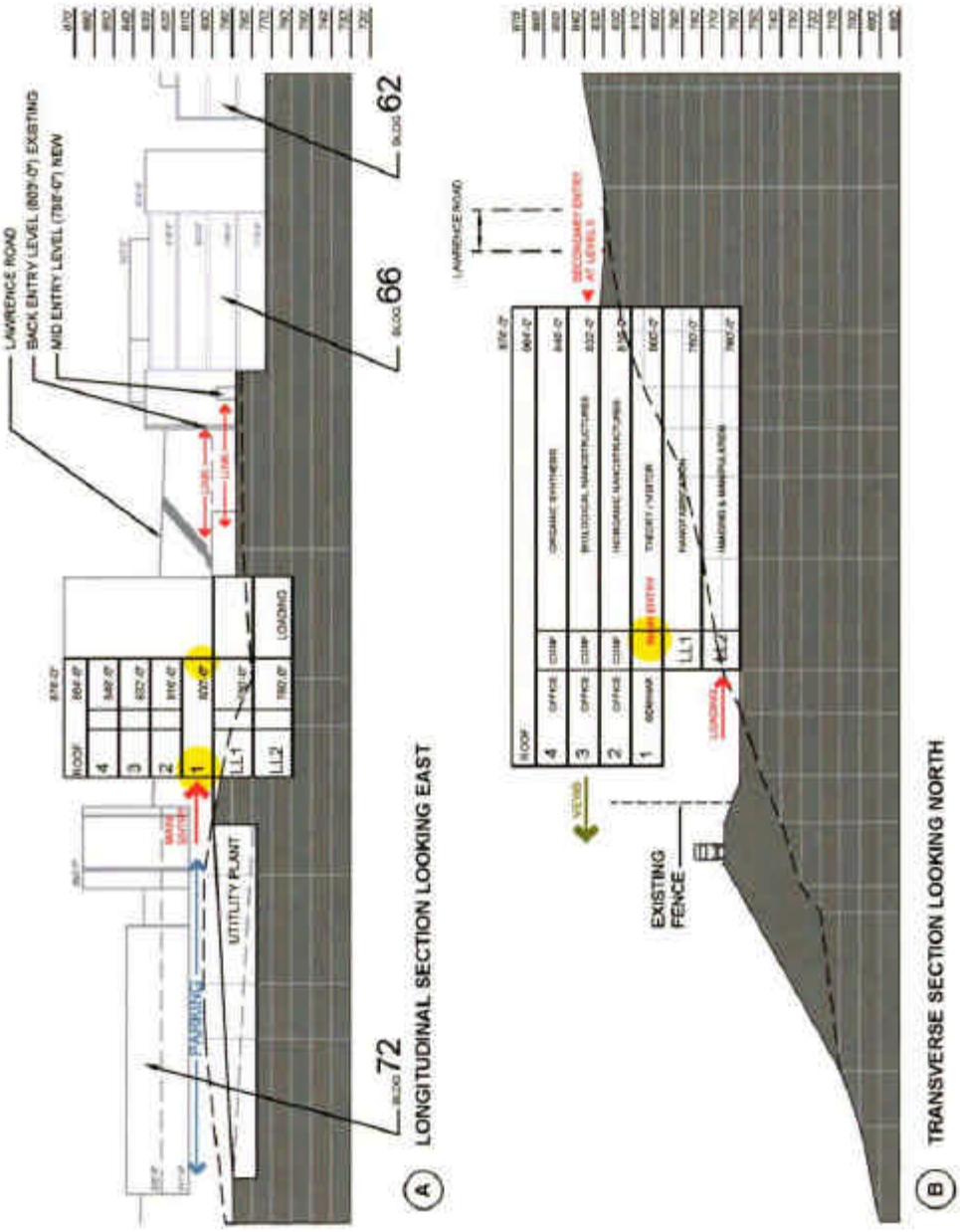
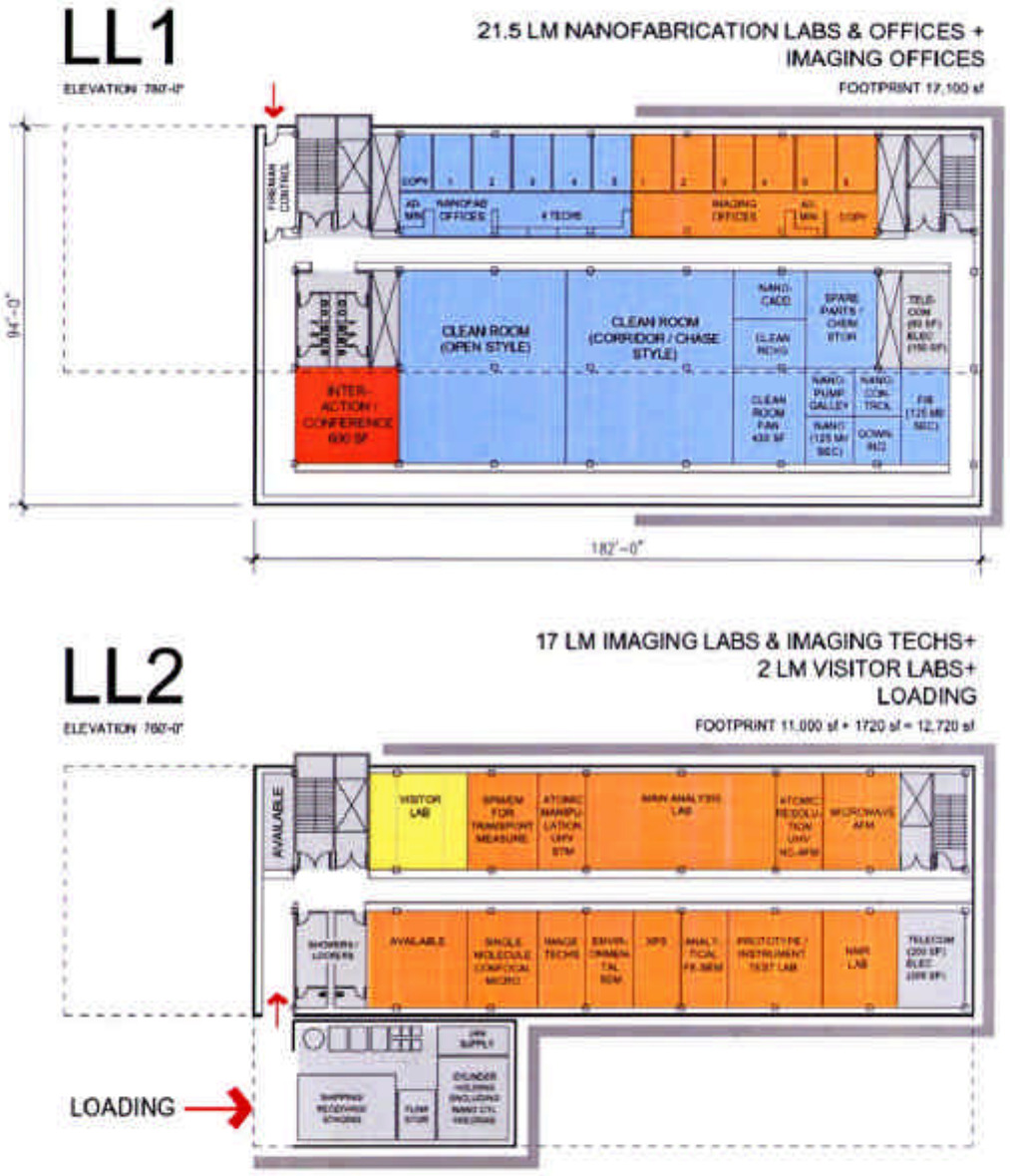


SOURCE: Lawrence Berkeley National Laboratory (2002)

LBNL Molecular Foundry / 202211 ■

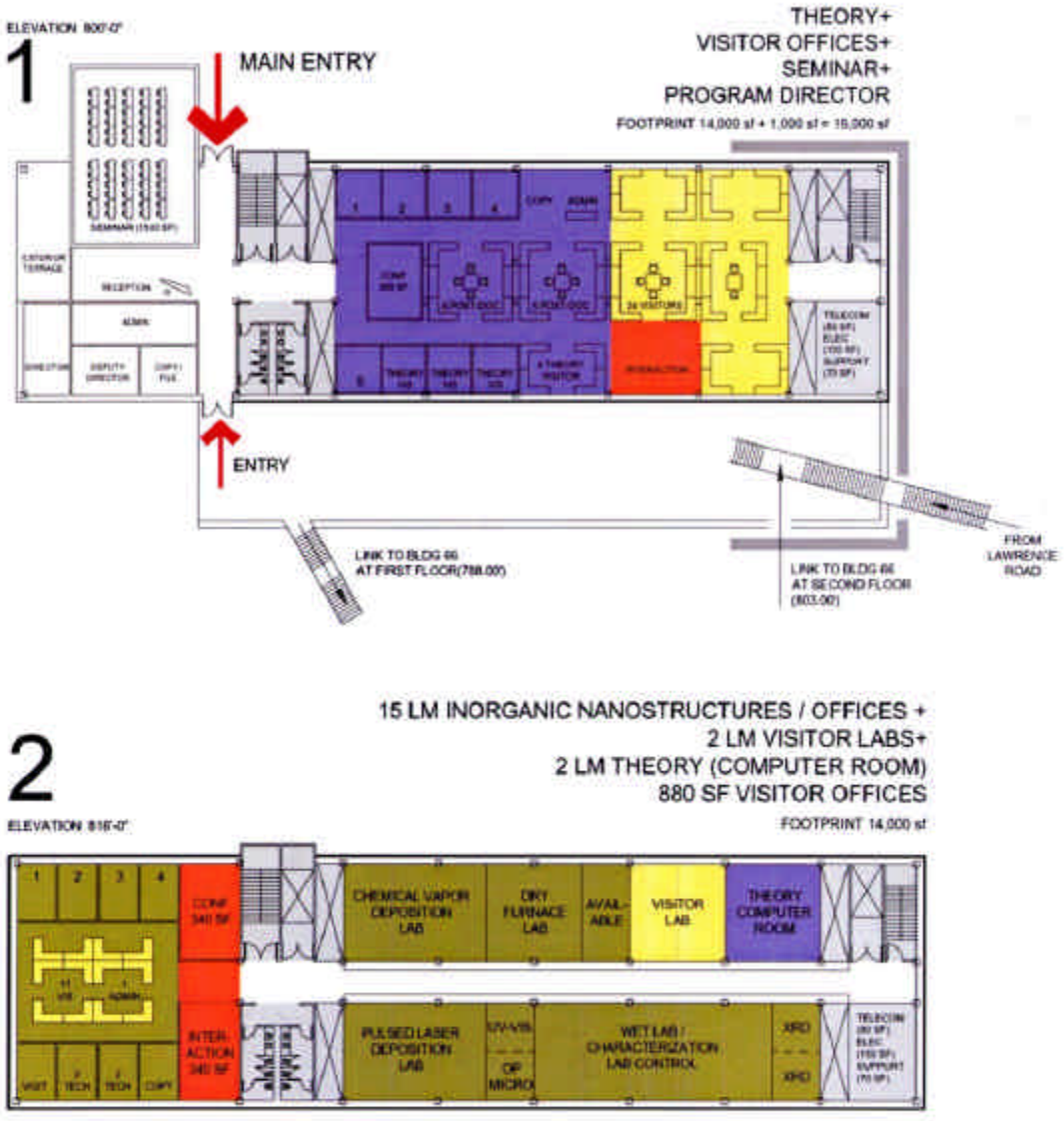
Figure 7
Molecular Foundry Elevations



SOURCE: Lawrence Berkeley National Laboratory (2002)

LBNL Molecular Foundry / 202211 ■

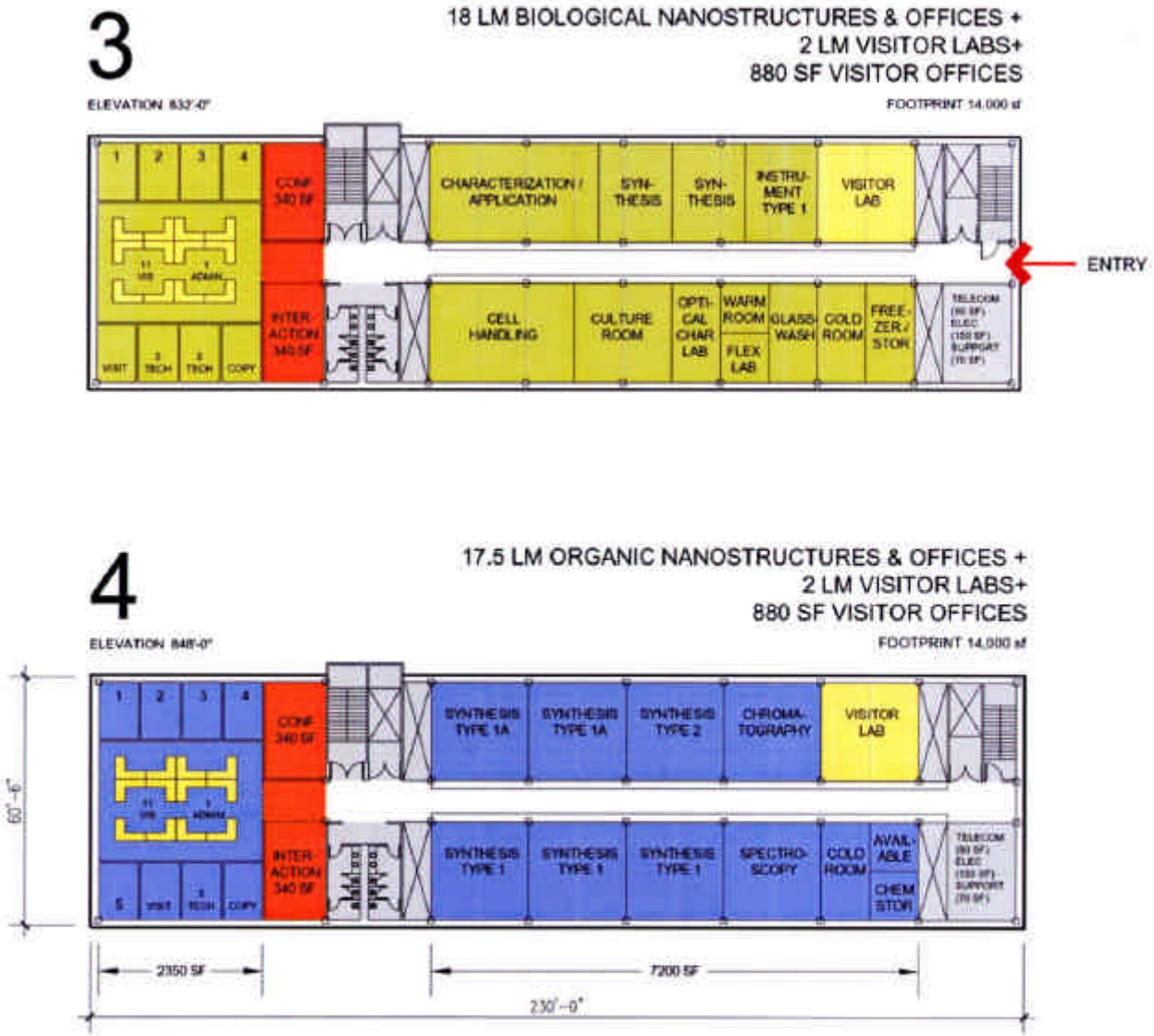
Figure 8
Floor Plans of Nanofabrication and Imaging Labs and Offices



SOURCE: Lawrence Berkeley National Laboratory (2002)

LBNL Molecular Foundry / 202211 ■

Figure 9
Floor Plans of Theory Offices and Inorganic Nanostructures and Offices



SOURCE: Lawrence Berkeley National Laboratory (2002)

LBNL Molecular Foundry / 202211 ■

Figure 10
Floor Plans of Biological and Organic Nanostructures and Offices

One of LBNL's goals is to incorporate cost-effective sustainable design principles into on-site construction. The Molecular Foundry's environmental impact would be minimized through the proposed building materials, waste minimization, energy and atmospheric impact minimization, water use efficiency, and environmental quality design. As part of the project, LBNL prepared a Conceptual Design Report that includes a complete list of the sustainable building design features that would be considered during design. The structural design would account for all loads to which the structure may be subject, including dead, live, wind, and seismic. The design would comply with the requirements of the California Building Code (CBC) and LBNL's "Lateral Force Design Criteria."

The exterior skin of the building would consist of non-reflective material that would minimize glare and exterior maintenance. The building roof would be a single-sheet, co-polymer roofing membrane system with heat reflective coating to reduce solar gain. Metallic screens would be located on the roof to conceal rooftop mechanical exhaust equipment.

The Molecular Foundry would be designed in conformance with requirements for Group "B" and "H-8" research laboratory occupancies as defined by the CBC, Type II Fire Resistive Construction, and with seismic safety and fire safety code requirements. The building would comply with all applicable disabled accessibility requirements in accordance with the Americans with Disabilities Act (ADA).

The proposed subsurface Central Utility Plant building would be oriented along a north/south axis, perpendicular to the adjacent Molecular Foundry building. The Central Utility Plant building would be constructed so as to accommodate approximately 16 overhead surface parking spaces (i.e., on its roof) (see Figure 7, Longitudinal Section Facing East). This rooftop would also provide pedestrian access to the main entrance of the Molecular Foundry building on its first floor. As described in Table 2, above, the CUP building would house the various utility systems needed for the Molecular Foundry, including equipment for heater boilers, chillers and chilled water pumps, air handling units, fans, an electrical distribution system, and connections to the LBNL existing fire alarm system.

Circulation

As further described below, as part of the project, vehicular access to the project site would be accommodated by the extension of Lee Road, which would result in a semi-circular road that loops around the project site. The Proposed Project would therefore be accessible from two locations along Lawrence Road: at the three-way intersection of the proposed new extension of Lee Road, the Building 31 parking lot, and Lawrence Road north of the project site; and at the intersection of Lee Road and Lawrence Road east of the project site.

In addition to vehicular access, the proposed project design addresses three other types of circulation: building occupant / pedestrian traffic circulation, service access, and fire truck / emergency services access. Entrances to the Molecular Foundry building would be located as follows: LL2[5] (bottom floor)—loading dock on the south side of the building; LL1 (upper basement floor)—on the north side of the building; first floor—main entrance on the north side, secondary main entrance on the south side; and third floor—on the east side. Access to the Central Utility Plant building would be provided on the southwestern corner of the building.

Each floor of the Molecular Foundry building would be organized around a main corridor that would access the labs, offices, meeting rooms, stairs, elevators, and building entrances (see Figures 8, 9, and 10). All foot traffic through

[5] The abbreviation "LL" means "lower level" (see Table 1 and Figures 7 and 8).

buildings would be routed through these main corridors, stairs, and elevators. Outside the building, an exterior, landscaped terrace would span the distance between Building 66 and the proposed Molecular Foundry building and would facilitate access between the two (see Figure 7, Longitudinal Section Looking East). Specifically, a stairway from the terrace to the balcony of the Molecular Foundry building would provide access to the southside main entrance on the first floor. A walkway northeast of the terrace would similarly allow direct access between the Molecular Foundry balcony and Building 66. A stairway northeast of the Molecular Foundry building would access the Lawrence Road parking lot, upslope. A short walkway would allow direct pedestrian access from Lawrence Road to the third floor entrance of the building; this walkway would also connect to Building 72 to the north. Access to the northside main entrance would be provided from a pedestrian walkway connecting the Molecular Foundry building to the surface parking lot atop the Central Utility Plant building.

Service entry, delivery, and truck loading would take place at the westside entrance and loading bay of the Molecular Foundry building on LL2 (the bottom floor of the building). The service yard is screened from view by a retaining wall to the east and by a landscape wall to the north.

Fire truck and emergency services access would be accommodated from Lee Road and adjacent to the Central Utility Plant building parking lot and to the north of the Molecular Foundry building. This access would also provide sufficient turn-around for emergency vehicles back onto Lee Road. Fire and emergency vehicle access to the east of the building would be provided from Lawrence Road.

Roadway Design and Parking

The Proposed Project includes the extension of Lee Road by approximately 350 linear feet, from the southwest corner of Building 66 in a north/northwest direction to the parking area of Building 31. Lee Road intersects Lawrence Road northeast of Building 66, and follows a southwestern route, running along the eastern side of Buildings 62 and 66, curving around the southern perimeter of Building 62, and then running along the western sides of Buildings 62 and 66 to the project site (see Figure 6). In addition, as part of the project, a 160-foot portion of Lee Road, located at the southwest end of Building 62, would be widened from approximately 18 feet to approximately 24 feet so as to safely accommodate two-way traffic. The proposed extension and widening would use soil excavated for construction of the Molecular Foundry complex.

Approximately 16 parking spaces would be provided on the inclining rooftop of the (partially below-grade) Central Utility Plant building. The building would be constructed with overhead reinforced concrete flat plate spanning from exterior supports spaced atop structural columns to support the parking load. Approximately 35 to 40 additional spaces would be required to serve the project and to maintain LBNL's desired parking ratio of 1.7 full-time equivalents (employees) per parking space. Those additional spaces would come from the general LBNL pool of about 2,400 parking spaces.

Storm Drainage and Impermeable Area

The Proposed Project would add approximately 1.5 acres of impervious surface to the project site. This is less than one-half of one-percent of the Upper Strawberry Creek sub-watershed area of 585 acres. This would be added to approximately 20 acres of existing impervious surface in the sub-watershed. About half of this impervious surface is on land managed by LBNL. Surrounding undeveloped areas would remain undeveloped and permeable and would continue to support grassland and tree groves. Roads, walkways, and parking areas would be paved with asphalt

concrete or Portland cement concrete capable of handling appropriate vehicular and pedestrian traffic; state-of-the-art porous pavement will be considered for use where practical. To the greatest extent possible, existing pervious surfaces would be preserved to minimize the amount of stormwater runoff. The terrace area would be a combination of paved and planted areas.

The Proposed Project would route surface water runoff into the LBNL storm drain system at points downslope and to the south and southeast of the Proposed Project. The Proposed Project would reroute an existing 12-inch storm sewer line that services this area along the newly constructed sections of Lee Road located south of the project site. This rerouted portion of the storm sewer line would be approximately 450 feet long and would extend from the northwestern area of Building 72 to the southwestern area of Building 66. New site storm drainage would collect and discharge in this re-routed 12-inch line.

Where relocation of existing storm drainage facilities is required, measures would be taken to provide controlled diversion of storm water during construction. Disturbed areas would receive final landscaping and seeding at the earliest practical time during construction so that ground cover would be well established by the next rainy season.

The drainage system would be capable of handling a 25-year storm of 2.5 inches of rain per hour and would be tied into the existing storm sewer at a junction approximately 50 feet south of the proposed project site. Rainwater from the new building roof and balcony areas would be considered for collection and storage for on-site use as non-potable landscape irrigation water and in other reclaimed water programs. Surface water drainage from the project site would be managed through the existing storm drain system, which discharges to a detention basin formed by a dam in Strawberry Creek.

All storm water discharged from LBNL must conform to LBNL's Storm Water Pollution Prevention Plan (SWPPP) and National Pollutant Discharge Elimination System (NPDES) permit, as required by the Clean Water Act and the State Water Resources Control Board. Oversight and enforcement of LBNL's SWPPP and NPDES permit are performed by the San Francisco Bay Regional Water Quality Control Board and the City of Berkeley.

Earthwork

The Proposed Project would require excavation of approximately 32,000 cubic yards of soil to construct the Molecular Foundry building and the Central Utility Plant building, and otherwise to prepare the site for roads and walkways. This fill material would not leave the site but would be used as engineered fill to construct the new Lee Road extension, along the western perimeter of the Molecular Foundry buildings, and for the widening of Lee Road, southwest of Building 62.

In all areas where excavations are to be made or fill deposited, the topsoil would first be stripped and stockpiled on-site for dressing finished slopes and for use in landscaped areas. Cut and fill slopes would not be steeper than recommended by a registered geotechnical engineer. Edges of cut banks would be rounded to blend into the natural terrain. Because excavations will be in the vicinity of existing buildings, shoring, bracing, and underpinning designed by a Professional Engineer would be used to secure the excavations. Based on long-term environmental investigations as well as site soil sampling conducted in January 2002, the site appears to be free of contamination or chemicals of potential concern.

Landscaping

The Proposed Project would require the removal of approximately three dozen trees to accommodate building footprints, roads, grading, and construction activities. These trees include Monterey pine, coastal redwood, coast live oak, and bay trees, most of which are located in the area adjacent to the western and southern faces of Building 72. Fewer than one dozen trees to be removed are downslope from the Building 66 rear parking lot, where trees occur in generally isolated patches. Much larger groves, consisting of up to several hundred trees each, in the general vicinity would remain untouched by the project, including a large screening grove of Canary Island pines to the west, a grove of screening redwoods to the southwest, a riparian corridor of various trees to the west and southwest, and several contiguous groves of oak, bay, acacia, and eucalyptus trees stretching from south of the project to the northeast.

The Proposed Project would transplant up to ten redwood or similarly sized trees along the western perimeter of Lee Road to provide screening for the project. Trees would be positioned to maximize screening benefits. In addition, replacement trees would be planted or transplanted in various locations in and surrounding the project site, particularly in the area between the Lee Road extension and the proposed Central Utility Plant building, which would receive about one dozen trees. All trees and other landscaping placed by the project would be irrigated as necessary. In addition, as part of the final design process, irrigation would be designed so as to minimize overspray and runoff. Irrigation and landscaping are expected to be consistent with the State Model Water Efficient Landscape Ordinance AB 325. The LRDP EIR anticipates the loss of mature trees as the result of Lab development (Impact III-D-2) and stipulates that revegetation of the sort described here be included as part of all new projects (Mitigation Measure III-D-2a).

Fire-resistant ground cover would be planted as needed for erosion control. Plant materials would be selected based on their indigenous, low-maintenance, and especially water-saving characteristics. The proposed terrace area between the proposed Molecular Foundry building and Building 66 would be a combination of paved and planted areas. The surface parking area atop the proposed utility building would include some planted areas. Landscape design would conform to LBNL vegetation management and design guidelines.

The conceptual landscaping plan for the project site consists of three zones: a crafted zone to be located to the south, natural zones to the west and east, and a parking zone to the north. The crafted zone would include the elevated terrace space between Building 66 and the Proposed Project, and would incorporate both hard and soft landscaping elements to physically and visually connect and unify the building uses. The natural zone includes the fire-resistant ground cover for erosion control, as well as decorative plant materials that would be selected based on their indigenous, low-maintenance, and especially water-saving characteristics. Finally, the parking zone would be located atop the proposed, below-grade utilities building to minimize the project's footprint and any potential disturbance to the existing natural environment.

UTILITIES

Utilities Corridor

New water supply, electrical power, and natural gas service would be routed along the north side of the proposed Molecular Foundry building, from points of connection on Lawrence Road along the north of the Foundry building into the south side of the proposed Central Utilities Plant building. Two parallel above-ground treated water lines that currently traverse the project site would be removed and replaced (see Figure 3).

Water Supply

An existing 12-inch high pressure cold water (HPCW) main is routed beneath Lawrence Road, along with fire and domestic water service to Building 72. Fire protection and domestic water services for the new building would be supplied via a connection to this existing 12-inch HPCW. New fire hydrants would be placed along the lower site with a connection to the existing 6-inch HPCW at the southwest corner of Building 66. The project would install low-flow plumbing fixtures and water-saving appliances; other devices and new technology (e.g., drip irrigation, re-circulating cooling systems, etc.) would be considered or employed where practicable to further water conservation. Water supply would be separated into industrial and domestic cold water systems. The industrial system would serve lab sinks and equipment; the domestic system would serve kitchen, restroom, and drinking fountain functions. Water pressure range would be 35 to 50 pounds per square inch. Engineering and safety features such as backflow preventers will be installed where appropriate and feasible. All new projects are subject to the East Bay Municipal Utility District's Water Service Regulations at the time of application for service.

Storm Water

As discussed earlier, an existing sub-grade storm water drainage piping crosses the proposed Molecular Foundry footprint. This line would be re-routed to the proposed lower access road, extending approximately 450 feet from the lower (western) side of Building 72 to the lower (western) side of Building 66. New site storm drainage would collect and discharge into this re-routed line.

Sanitary Sewer

An existing sub-grade 6-inch sanitary sewer line crosses the proposed Molecular Foundry building footprint (see Figure 3). This line would be re-routed to the proposed lower access road, extending approximately 450 feet from the lower (western) side of Building 72 to the lower (western) side of Building 66. Sanitary sewage from the Proposed Project would discharge into this re-routed line (see Figure 4).

Natural Gas

An existing sub-grade 3-inch high-pressure natural gas main crosses the proposed Molecular Foundry building footprint (see Figure 3). This line would be re-routed, extending approximately 210 feet between the proposed Molecular Foundry building and Building 72 (see Figure 4).

Compressed Air

An existing sub-grade 3-inch compressed air line crosses the proposed Molecular Foundry building footprint (see Figure 3). The line would be re-routed to the lower access road, extending approximately 360 feet from between Building 72 and the Central Utility Plant building to the lower (western) side of Building 66 (see Figure 4).

Treated Water

Existing supply and return treated water-piping crosses the proposed Molecular Foundry building footprint (see Figure 3). This above-grade piping, which currently extends from the Building 72 complex to Building 66, would be abandoned and removed (see Figure 4). Treated water for Proposed Project operations would be supplied from the proposed Central Utility Plant building. The Central Utility Plant would supply chilled water, treated water, heated water, purified water, and de-ionized water to the Molecular Foundry. The chilled water would be produced by two

350-ton centrifugal, water-cooled, variable speed drive chillers and two water towers located at the northeast corner of the Central Utility Plant building.

Power

A 12,470-volt electrical power supply would be routed from the existing LBNL SW-A5 substation near the Strawberry Canyon entrance gate along Lawrence Road, approximately 1,000 feet east of the project site. The estimated load for the Molecular Foundry operations would be 3,800 kVA, assuming a 30 percent spare capacity.

Emergency electrical power would be supplied by a 750-kilowatt diesel generator located within the Central Utility Plant building. A 3,000-gallon above-ground, double-contained tank would supply fuel storage for 48 hours of generator operation. An authority to construct and a permit to operate from the Bay Area Air Quality Management District would be necessary before the emergency generator could be placed and used.

Natural gas for lab work, water heating, and space heating would be supplied to the Molecular Foundry through the Central Utility Plant by a tie-in on the sub-grade gas main along Lawrence Road. Gas would be supplied at 7-inch water column pressure at approximately four cfg per working outlet. LBNL's standard gas meters, pressure regulators, and automatic seismic shut-off valves would be incorporated into the project.

Exhaust

The Molecular Foundry building would include one common system for both fume hoods and general exhaust. The exhaust capacity of the Foundry building is estimated to be approximately 25,000 cubic feet per minute for the four primary fans and 28,000 cubic feet per minute for four standby fans that would comprise the building exhaust system.

An estimated 48 fume hoods would be installed in the Molecular Foundry. The normal chemical fume hoods would be variable air volume hoods. Each fume hood would be equipped with a hood-ventilated air sensor. Flammables and corrosives storage would take place in special cabinets either beneath or adjacent to a fume hood, and cabinet vents would be plumbed to the hood exhaust system.

Fume hood exhausts would be located on the Molecular Foundry building roof. Discharge from the fume exhaust would meet all applicable vertical velocity and stack height requirements. Air intakes for the foundry would be located in different areas of the roof. Potential air re-entrainment from the proximity of fume hood exhausts and air intakes would be avoided through specific engineering and design-including wind-tunnel modeling, if necessary, during the design phase of the Proposed Project.

Telecommunications

Telecommunications services would be provided from the existing telephone and data communications node located south of Building 62.

CONSTRUCTION

Construction would take place over a 24-month period, beginning in approximately January 2004 and ending in approximately February 2006. Construction staging would likely take place in the adjacent corporation yard, downslope of the project site. The staging area would be primarily on two existing plateaus alongside Chicken Creek

Road in the Poultry Husbandry Area. These areas total approximately one-half acre and are currently and historically used for vehicle parking and construction laydown uses.

Approximately 32,000 cubic yards would be excavated to construct the Molecular Foundry project: approximately 26,500 cubic yards of material would be excavated to construct the Molecular Foundry building, and approximately 5,500 cubic yards would be excavated to construct the Central Utility Plant building.

Excavated fill material, with the exception of topsoil, would not be stockpiled for extended periods but would be used shortly or immediately after it was excavated. If stockpiling were to occur, however, it would take place within the project site boundaries and would adhere to LBNL's standard construction practices and a project-specific Storm Water Construction Permit and Pollution Prevention Plan, such as watering as necessary to minimize dust and covering of materials to prevent downstream water quality degradation from run off (LRDP EIR, as amended, Mitigation Measures III-J-1).

It is anticipated that some dewatering might be necessary during project excavation and construction. If dewatering were necessary during excavation and construction, it would not be expected to contain any chemicals of special concern given the results of sampling conducted in January 2002.[6] Such water, if encountered, could therefore be discharged as specified in the Storm Water Pollution Prevention Plan (SWPPP) that would have to be in place before project construction could begin. It is expected that the SWPPP would rely on such practices as installation of silt traps, fencing, and the use of filter fabric or other measures to protect surface drains and storm sewers during excavation, construction, and dewatering phases of the Proposed Project. Specific erosion and sedimentation control measures, such as construction entrance stabilization, silt traps, netting on slopes, and cover of dirt piles, would be detailed in the Plan.

The Molecular Foundry building foundation would consist of 36-inch-diameter drilled, cast-in-place piers. These piers would be approximately 40 to 45 feet long. The Central Utility Plant building would be constructed on a foundation of spread footings. No pile driving would be used in the construction of this project.

The Molecular Foundry Project Office, with support from the LBNL Construction Safety Engineer, would monitor the construction site for compliance with LBNL, DOE, CAL/OSHA and CAL/EPA, federal OSHA and EPA, and other applicable safety requirements identified in LBNL's Work Smart Standards. Monitoring activities would include validation of the contractor's ISM program, apprising the contractor of safety criteria pertaining to the construction project, conducting and documenting frequent periodic inspections to verify contractor safety compliance, and ensuring that the construction contractor was meeting ongoing ES&H submittal requirements.

REQUIRED PROJECT APPROVALS

The 200-acre LBNL site is owned by The Regents of the University of California and is leased to the Department of Energy (DOE); the National Laboratory facilities themselves are owned by DOE. LBNL is operated by the University of California under a contract with DOE. The Board of Regents of the University of California (The Regents) is the University's decision-making body. The Regents will be asked to review and consider this Tiered Initial Study/Mitigated Negative Declaration, and to adopt Findings and a Mitigation Monitoring Program in conjunction

[6] Lawrence Berkeley National Laboratory and BC Laboratories, Inc., *Environmental Sampling Report: Radiological, Organics, and Metals Sampling and Analysis at the Proposed Molecular Foundry Site*, February 1, 2002.

with their review and consideration of the design of the proposed Molecular Foundry project. It is currently anticipated that the Molecular Foundry project would be presented for The Regents' consideration and approval at the March 2003 Regents meeting.

DOE has funding approval for the proposed Molecular Foundry project. DOE would also decide whether to adopt a mitigated Environmental Assessment (EA) and any Finding of No Significant Impact that has been prepared under NEPA. The Draft EA has been prepared and is circulated for agency and public review along with this Tiered IS/MND.

The Bay Area Air Quality Management District (BAAQMD) will be asked to grant an Authority to Construct and Permit to Operate for installation and operation of the proposed 750-kilowatt diesel-powered emergency generator. BAAQMD has regulatory authority over air emission sources in the nine-county Bay Area.

The State Water Resources Control Board (SWRCB) and the San Francisco Regional Water Quality Control Board (RWQCB) have permitting authority for issuing a Storm Water Construction Permit, which is currently required for construction projects of more than one acre (the site is approximately two and one-half acres). A construction-specific Storm Water Pollution Prevention Plan (SWPPP) will be prepared. In addition, modification to the Lab's site-wide SWPPP, which is part of its NPDES Phase I General Industrial Stormwater Discharge Permit, would be necessary to update such items as site maps, storm drainage rerouting, and estimates of impervious area on the site. It is not currently anticipated that final project design will include any operational elements that would affect runoff or involve a routine unauthorized discharge as defined in the permit. The East Bay Municipal Utility District (EBMUD) has permitting authority for issuing a Wastewater Discharge Permit. The current site-wide Wastewater Discharge Permit is adequate, but any project-related changes to operations would require notification of EBMUD. At a minimum, notification will be made to EBMUD of increased water usage on site. A determination of the necessity for any further notification based on operations would be made based on specific research plans that are developed during final design of the Proposed Project.

VII. IMPACT QUESTIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Impact for which LRDP/ Program EIR is Sufficient	Less Than Significant Impact	No Impact
1. AESTHETICS -- Would the project:					
a) Have a substantial adverse effect on a scenic vista?			X		
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?					X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X		
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X		
e) Exceed an applicable LRDP or Program EIR standard of significance?			X		
2. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?					X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?					X
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?					X
d) Exceed an applicable LRDP or Program EIR standard of significance?					X

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Impact for which LRDP/ Program EIR is Sufficient	Less Than Significant Impact	No Impact
3. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	_____	_____	X	_____	_____
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	_____	_____	X	_____	_____
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	_____	_____	X	_____	_____
d) Expose sensitive receptors to substantial pollutant concentrations?	_____	_____	X	_____	_____
e) Create objectionable odors affecting a substantial number of people?	_____	_____	_____	_____	X
f) Exceed an applicable LRDP or Program EIR standard of significance?	_____	_____	X	_____	_____
4. BIOLOGICAL RESOURCES -- Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	_____	X	_____	_____	_____
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	_____	_____	_____	_____	X

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Impact for which LRDP/ Program EIR is Sufficient	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?					X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?					X
e) Conflict with any local applicable policies protecting biological resources?					X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?					X
g) Exceed an applicable LRDP or Program EIR standard of significance?		X			
5. CULTURAL RESOURCES -- Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?			X		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?			X		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X		
d) Disturb any human remains, including those interred outside of formal cemeteries?			X		
e) Exceed an applicable LRDP or Program EIR standard of significance?					X

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Impact for which LRDP/ Program EIR is Sufficient	Less Than Significant Impact	No Impact
6. GEOLOGY AND SOILS -- Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:			X		
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X		
ii) Strong seismic groundshaking?			X		
iii) Seismic-related ground failure, including liquefaction?					X
iv) Landslides?			X		
b) Result in substantial soil erosion or the loss of topsoil?			X		
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X		
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X		
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?					X
f) Exceed an applicable LRDP or Program EIR standard of significance?					X
7. HAZARDS AND HAZARDOUS MATERIALS – Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X		
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X		

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Impact for which LRDP/ Program EIR is Sufficient	Less Than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?					X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?					X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?					X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X		
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			X		
i) Exceed an applicable LRDP or Program EIR standard of significance?					X
8. HYDROLOGY AND WATER QUALITY -- Would the project:					
a) Violate any water quality standards or waste discharge requirements?			X		
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			X		

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Impact for which LRDP/ Program EIR is Sufficient	Less Than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?			X		
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				X	
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X		
f) Otherwise substantially degrade water quality?			X		
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?			X		
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?			X		
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			X		
j) Inundation by seiche, tsunami, or mudflow?					X
k) Exceed an applicable LRDP or Program EIR standard of significance?					X
9. LAND USE AND PLANNING - Would the project:					
a) Physically divide an established community?					X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the LRDP, general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			X		

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Impact for which LRDP/ Program EIR is Sufficient	Less Than Significant Impact	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?					X
d) Exceed an applicable LRDP or Program EIR standard of significance?					X
10. MINERAL RESOURCES -- Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?					X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?					X
c) Exceed an applicable LRDP or Program EIR standard of significance?					X
11. NOISE – Would the project result in:					
a) Exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies?				X	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?					X
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?					X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?					X
g) Exceed an applicable LRDP or Program EIR standard of significance?					X

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Impact for which LRDP/ Program EIR is Sufficient	Less Than Significant Impact	No Impact
12. POPULATION AND HOUSING -- Would the project:					
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X		
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?					X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?					X
d) Exceed an applicable LRDP or Program EIR standard of significance?					X
13. PUBLIC SERVICES					
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
Fire protection?			X		
Police protection?			X		
Schools?					X
Parks?					X
Other public facilities?			X		
b) Exceed an applicable LRDP or Program EIR standard of significance?					X
14. RECREATION --					
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?					X

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Impact for which LRDP/ Program EIR is Sufficient	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?					X
c) Exceed an applicable LRDP or Program EIR standard of significance?					X
15. TRANSPORTATION/TRAFFIC -- Would the project:					
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?				X	
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?					X
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?					X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?					X
e) Result in inadequate emergency access?					X
f) Result in inadequate parking capacity?			X		
g) Conflict with applicable policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?					X
h) Exceed an applicable LRDP or Program EIR standard of significance?					X
16. UTILITIES AND SERVICE SYSTEMS – Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			X		

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Impact for which LRDP/ Program EIR is Sufficient	Less Than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	_____	_____	X	_____	_____
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	_____	_____	X	_____	_____
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	_____	_____	X	_____	_____
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	_____	_____	X	_____	_____
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	_____	_____	X	_____	_____
g) Comply with applicable federal, state, and local statutes and regulations related to solid waste?	_____	_____	X	_____	_____
h) Exceed an applicable LRDP or Program EIR standard of significance?	_____	_____	_____	_____	X
17. MANDATORY FINDINGS OF SIGNIFICANCE --					
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	_____	_____	X	_____	_____

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Impact for which LRDP/ Program EIR is Sufficient	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	_____	_____	X	_____	_____
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	_____	_____	X	_____	_____

18. Fish and Game Determination

Based on the information above, there is no evidence that the project has a potential for a change that would adversely affect wildlife resources or the habitat upon which the wildlife depends. The presumption of adverse effect set forth in 14 CCR 753.5 (d) has been rebutted by substantial evidence.

☐ Yes (Certificate of Fee Exemption)

☒ No (Pay fee)

VIII. NARRATIVE DISCUSSION OF CHECKLIST EVALUATION

(unless discussion of impacts is integrated in section V. 1-16)

1. AESTHETICS

LRDP EIR, as amended:

The impact of LBNL projects on visual quality would be considered significant if it would exceed the following Standards of Significance, established by the LRDP EIR, as amended:

- Fail to comply with guidelines or goals related to visual quality;
- Significantly alter the existing natural viewsheds, including changes in natural terrain;
- Significantly change the existing visual quality of the region or eliminate visual resources;
- Significantly increase light and glare in the project vicinity; and
- Significantly reduce sunlight or introduce shadows in areas used extensively by the campus population.

The following relevant impacts to visual quality and aesthetics have been anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which this analysis is tiered:

Impact III-F-1:	Continued implementation of the 1987 LRDP will result in a change to the visual quality of LBNL and the surrounding environs. Impact III-F-2:Some LBNL projects may be visible because trees, which would have screened the building, have been removed and replacement landscaping will take some time to reach full height.
Impact III-D-2:	Continued University operation of LBNL, including continued implementation of the LRDP, will result in the loss of some vegetation, including potential loss of mature trees and areas with some habitat for non-critical species.
Cumulative Impacts[7]:	No significant cumulative impacts are expected.

As a result of anticipated impacts to visual quality, the following mitigation measures, adopted as part of the LRDP EIR, as amended, are already required for the Proposed Project, and are therefore incorporated as part of the Proposed Project's description:

Mitigation Measure III-F-1a:	Buildings will occupy as limited a footprint as feasible. They will incorporate features that enhance flexibility and future versatility.

[7] LRDP EIR, as amended, cumulative impacts discussions are summarized rather than quoted here and throughout this document where concise cumulative impact statements were not articulated in the LRDP EIR, as amended.

Mitigation Measure III-F-1b:	Buildings will be planned to blend with their surroundings and be appropriately landscaped. Planned objectives will be for new buildings to retain and enhance long-distance view corridors and not to compromise views from existing homes. New buildings will generally be low-rise construction.
Mitigation Measure III-F-2:	Any new facilities will not use reflective exterior wall materials or reflective glass, to mitigate the potential impacts of light and glare.
Mitigation Measure III-D-2a:	Revegetation of disturbed areas, including slope stabilization sites, using native shrubs, trees, and grasses will be included as part of all new projects.

Discussion:

a) The Proposed Project is located in an area intermittently visible from surrounding short- and long-range viewpoints. The site is adjacent to the easternmost[8] perimeter of the UC Berkeley campus in a scenic area that encompasses the Oakland and Berkeley Hills, and Strawberry and Blackberry Canyons. The hills provide a semi-natural, vegetated open-space backdrop to the project site. Most of the western slopes of these hills are wooded with either native canyon stands of oak and California bay or with introduced plantations of eucalyptus or conifers. It is these terrain features, most notably the slopes that comprise the Strawberry Canyon and the surrounding stands of tall trees, that provide cover to the proposed project site from most potential viewpoints in the surrounding region.

Although adjacent to the Building 66 and 72 complexes and roadways, the proposed, approximately 2.5-acre project site is currently mostly undeveloped and includes several trees and grassland areas, and an asphalt surface parking area at the central portion of the site. The site is located in a portion of Strawberry Canyon that is visible to persons along a short segment of Lawrence Road in the immediate vicinity of the site or further east and uphill of the site along portions of Centennial Drive. The site is also visible in medium-range views from nearby private development along Grizzly Peak Boulevard, the Panoramic Hill residential neighborhood, and from a narrow view corridor through the adjacent UC campus that includes a portion of Memorial Stadium's north-facing seats.

Nearby and adjacent buildings include the National Center for Electron Microscopy (Building 72) and the Surface Sciences and Catalysis Laboratory (Building 66). The buildings in the Materials and Chemistry Research Planning Area are designed to take advantage of the long-range Bay views afforded by the Strawberry Canyon view corridor. Existing vantage points on the LBNL site within a quarter-mile of the proposed project site include locations along north-south axis streets such as Lawrence Road, at locations with higher elevations to the east of the site along Centennial Drive, and at traffic turn-outs. Views afforded from these vantage points include long-range views westwards towards the Bay, including historic landmarks such as the Golden Gate Bridge and Alcatraz Island, as well as the urban landscape of the adjacent Berkeley and UC campus development.

The Proposed Project would alter views of the mostly vacant site from nearby areas, including the adjacent UC campus and Panoramic Hill residential neighborhood. However, as the proposed development would be located between existing buildings of comparable height and massing, and vegetative screening would be incorporated, the

[8] This analysis incorporates true compass directions.

change in landscape would not be discernible at a detailed local level, but would appear as a general increase in development of the LBNL site.

Although many trees on the immediate project site would be removed, the East Strawberry Canyon perimeter "buffer zone," consisting of existing and proposed plantings of tall, indigenous, and non-native tree stands, would be maintained to act as a visual buffer between Lab development and adjacent uses including the UC Berkeley Campus, nearby hillside residential areas, the Lawrence Hall of Science, and the UC Berkeley Botanical Garden. This would be in keeping with the visual buffer and landscaping directives of the 1987 LRDP. Furthermore, landscape planting areas within and adjacent to the site would be established to "unify the site visually, to relate the site to adjacent vegetation of the Berkeley Hills, and to provide compatibility between buildings and adjacent properties" (1987 LRDP, p.16). The conceptual landscaping plan for the project site consists of three zones: a crafted zone to be located to the south, natural zones to the west and east, and a parking zone to the north. The crafted zone would include an elevated terrace space between Building 66 and the Proposed Project, and would incorporate both hard and soft landscaping elements to physically and visually connect and unify the building uses. The natural zone includes fire-resistant ground cover for erosion control, as well as decorative plant materials that would be selected based on their indigenous, water-saving, and low- maintenance characteristics. Finally, the parking zone would be located atop the proposed below-grade utilities building to minimize the project's footprint and any potential disturbance to the existing natural environment.

As the Proposed Project would incorporate the above-mentioned landscaping details into the design of the project, and would be located between existing buildings of comparable height and massing, the proposed development would not have a substantial adverse effect on a scenic vista.

b) The California Department of Transportation (Caltrans) has designated 8.9 miles of Highway 24, from the east portal of the Caldecott Tunnel to the I-680 near Walnut Creek, as a Scenic Highway under the California Scenic Highway Program. In addition, the City of Berkeley has designated two scenic view corridors: Cedar Street and Dwight Way. Likewise, the City of Oakland has designated two scenic corridors: Skyline Boulevard and Shepherd Canyon Road. However, Highway 24 is about two miles south of the project site, Cedar Street is about one mile west, Dwight Way is about one mile southwest, Skyline Boulevard is about five miles southeast, and Shepherd Canyon Road is about 11 miles south. The project site would not be located within these scenic corridors, and would therefore have no impact on scenic corridors in the vicinity.

The Proposed Project would require removal of approximately three dozen trees to accommodate building footprints, roads, grading, and construction activities. Trees proposed for removal include Monterey pine, coastal redwood, coast live oak, and bay. The majority of the trees would be removed from the area adjacent to the western and southern faces of Building 72. Fewer than one dozen trees to be removed are downslope from the Building 66 rear parking lot. These trees occur in generally isolated patches. Much larger groves consisting of up to several hundred trees each in the general vicinity would remain untouched by the project, including a large screening grove of Canary Island pines to the west, a grove of screening redwoods to the southwest, a riparian corridor of various trees to the west and southwest, and several contiguous groves of oak, bay, acacia, and eucalyptus trees stretching from south of the project to the northeast.

The Proposed Project would transplant up to ten redwood or similarly sized trees along the western perimeter of Lee Road to provide screening for the project. Trees would be positioned to maximize screening values. In

addition, replacement trees would be planted or transplanted in various locations in and surrounding the project site, particularly in the area between the Lee Road extension and the proposed Central Utility Plant building, which would receive about one dozen trees. All trees placed by the project would be irrigated as necessary. The LRDP EIR, as amended, accounts for the temporary impact of replacing more mature trees with younger, smaller trees in Impact III-F-2. Because the principal screening values and visual character of project-removed trees would be replaced, tree removal for this project would not cause a significant impact. Furthermore, while the LRDP EIR anticipates the loss of mature trees as the result of Lab development (Impact III-D-2), it stipulates that revegetation of the sort described here be included as part of all new projects (Mitigation Measure III-D-2a) to ensure that such impacts are less than significant.

c) The Proposed Project would result in a visual change to the project site because it would entail the construction of a six-story building (four stories cantilevered atop two basement levels) on a mostly undeveloped hillside site. Associated roof-top parking would be provided at a proposed nearby, below-grade utilities building. The project would be located in an area that is developed with existing science research buildings and associated uses of similar massing and height, and would incorporate buffer-zone landscaping, as described above, around the perimeter of the project site for screening purposes. Natural landscaping details include fire-resistant ground cover for erosion control, as well as decorative plant materials that blend with the surrounding wooded hillside. Furthermore, the Proposed Project would implement existing design guidelines, as described in the current LBNL LRDP, and would undergo design review by LBNL's architects and engineers prior to construction to ensure project conformance with the guidelines. The proposed building would incorporate architectural details that are similar to or that complement adjacent development; the building exterior materials would incorporate a non-reflective material to minimize glare and exterior maintenance, and the roof would consist of a single-sheet, co-polymer roofing membrane system with heat-reflective coating to reduce solar gain. Metallic screens would be located on the roof to conceal rooftop mechanical exhaust equipment. The current LRDP designates the project site as a "proposed addition," and anticipated that a laboratory building would be constructed there. As the project would conform to the current LRDP land use designation, and would incorporate site-sensitive landscaping and design principles into project design, the Proposed Project would be consistent with the 1987 LRDP, and furthermore would not substantially degrade the existing visual quality of the site and its surroundings beyond what was anticipated and analyzed in the LRDP EIR, as amended.

d) The Proposed Project would be located in a hillside area of the LBNL site that includes several other LBNL buildings that provide existing potential sources of light and glare, including the adjacent Buildings 72 and 66. The site is also located among local roadways including Lawrence Road and Lee Road, where street lighting projects light and glare during evening hours. The project includes an open-surface parking area atop a proposed, below-grade utilities building and anticipates outdoor lighting for operation purposes. The Proposed Project would include some fixed exterior lighting, particularly at building entrance points and at the surface parking area, to promote worker safety. The project would include a detailed exterior lighting plan that would be reviewed by LBNL's architects and engineers prior to construction. Furthermore, in keeping with LRDP EIR, as amended, Mitigation Measure III-F-2, the project would utilize non-reflective exterior materials, would adhere to a foot-candle maximum level at night, and would install night caps on all outdoor fixtures to minimize potential light and glare spillover impacts. As these actions would ensure conformance with the current LRDP design guidelines as well as compatibility with surrounding land uses, the Proposed Project would not result in a significant new source of light or glare.

e) As noted in the discussion above, under the LRDP EIR, as amended, the Proposed Project would not exceed the Standards of Significance established for environmental effects related to aesthetics.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None. The Proposed Project would incorporate LRDP EIR, as amended, Mitigation Measures III-F-1a, III-F-1b, and III-F-2. As a result, no significant aesthetic or visual resources impacts would result from the Proposed Project.

Molecular Foundry Project-Specific Mitigation Measures: None required.

Sources:

California Department of Transportation (Caltrans), *California Scenic Highway Program*, http://www.dot.ca.gov/hq/LandArch/scenic/scpr.htm, accessed March 15, 2002.

City of Berkeley: Draft General Plan, *Urban Design and Preservation Element*, July 2001.

City of Oakland: Oakland General Plan, *Open Space Conservation and Recreation Element*, June 1996.

Lawrence Berkeley National Laboratory, *Draft and Final Environmental Impact Report for the 1987 Site Development Plan*, (SCH# [19]85112610), August 1987.

Lawrence Berkeley National Laboratory, *Draft and Final Supplemental Environmental Impact Report (SEIR) for the Proposed Renewal of the Contract Between the United States Department of Energy and the Regents of the UC for the Operation and Management of the Lawrence Berkeley Laboratory*, SCH# [19]91093068, prepared by the University of California and Lawrence Berkeley Laboratory, with the assistance of Ira Fink and Associates, Inc., September 1992.

Lawrence Berkeley National Laboratory, *Supplemental Environmental Impact Report Addendum for the Proposed Renewal of the Contract Between the United States Department of Energy and the Regents of the UC for the Operation and Management of the Lawrence Berkeley Laboratory*, SCH# [19]91093068, September 1997.

Lawrence Berkeley Laboratory: Long Range Development Plan, PUB- 5184, August 1987.

Site Visit to proposed Molecular Foundry site, ESA, March 13, 2002.

Smith Group, *Concept Design Report: Molecular Foundry Facility, Lawrence Berkeley National Laboratory*, April 1, 2002.

2. AGRICULTURAL RESOURCES

LRDP EIR, as amended:

The impact of LBNL projects on agricultural resources would be considered significant if it would exceed the following Standard of Significance, established by the LRDP EIR, as amended:

- Is located within an area designated as Important Farmland by Soil Conservation Service (U.S. Department of Agriculture).

The LRDP EIR, as amended, did not identify any potential impacts to agricultural resources.

Discussion:

a,b,c) The project site is located in the Materials and Chemistry Research Planning Area of the LBNL site, which is a developed area that does not include agricultural uses. In addition, the project site, as with the majority of developed land in the site vicinity including the City of Berkeley and the City of Oakland, is designated by the California Department of Conservation's Farmland Mapping and Monitoring Program as Urban and Built-Up Land (Department of Conservation, 1998). Therefore, the Proposed Project would not convert any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Furthermore, the Proposed Project would not conflict with the existing LBNL LRDP site land use designation, nor the City of Berkeley or City of Oakland General Plan land use designations. The project would therefore not involve any changes to the environment that could result in the conversion of farmland.

d) As noted in the discussion above, the Proposed Project would not exceed the Standard of Significance established for determining potential environmental effects to agricultural resources.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None.

Molecular Foundry Project-Specific Mitigation Measures: None required.

Sources:

City of Berkeley: Draft General Plan, *Land Use Element*, July 2001.

City of Oakland: Oakland General Plan, *Land Use and Transportation Element*, March 24, 1998.

Department of Conservation, Prime Farmland in Alameda County Map, 1998.

Lawrence Berkeley Laboratory: *Long Range Development Plan*, PUB- 5184, August 1987.

Project Description and Plans.

3. AIR QUALITY

LRDP EIR, as amended:

The 1997 SEIR Addendum reported that the Bay Area Air Basin (Air Basin) was in non-attainment of state standards for concentrations of particulate matter less than 10 microns in diameter (PM-10) and for ozone. In addition, the Air Basin was in non-attainment of federal standards for carbon monoxide (CO) in urban areas. The Air Basin was in non-attainment for the pollutants just named for the period including the 1987 LRDP EIR and the 1992 SEIR, and although it was temporarily redesignated as being in attainment with the ozone standard at the time the 1997 Addendum was approved, it shortly thereafter returned to a non-attainment designation in August 1998.

The LRDP EIR, as amended, uses significance thresholds established by the Bay Area Air Quality Management District (BAAQMD). These thresholds were current as of the last amendments to the LRDP (1992 and 1997). Two subsequent changes to the thresholds used in the 1992 SEIR are the reduction from 150 pounds-per-day to 80 pounds-per-day and the addition of a 15-tons/year standard for the following criteria pollutant emissions: reactive organic gases (ROG), oxides of Nitrogen (NO_x), and PM-10. The LRDP EIR, as amended, demonstrated in its 1997 Addendum that it continues to fall below the new, more stringent standards.

The following relevant impacts to air quality were anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which this analysis is tiered:

Impact III-J-1:	Construction of new facilities projected in the 1987 LRDP would generate short-term emissions of air pollutants.
Impact III-J-2:	The Proposed Project at LBNL would generate long-term emissions of criteria air pollutants.
Cumulative Impacts:	Projects developed in the San Francisco Bay Area are expected to result in increased vehicle trips and increased emissions of pollutants from stationary and mobile sources that contribute to the Bay Area's non-attainment status. Project development would also result in an increase of LBNL TACs emissions and a contribution to cumulative TACs emissions in the region.

As a result of anticipated impacts to air quality, the following mitigation measures, adopted as part of the LRDP EIR, as amended, are already required for the Proposed Project, and are therefore incorporated as part of the Proposed Project's description:

Mitigation Measure III-J-1:	Construction contract specifications would require that during construction exposed surfaces would be wetted twice daily or as needed to reduce dust emissions. In addition, contract specifications would require covering of excavated materials.
Mitigation Measure III-J-2:	LBNL will design building ventilation systems to minimize emission of criteria air pollutants following compliance with all applicable regulatory requirements (e.g., New Source Review). Although this impact was not

found to have exceeded the BAAQMD's threshold for significance, the LRDP EIR, as amended, conservatively identified this impact as not fully mitigated by Mitigation Measure III-J-2 "for the purposes of this SEIR."

Cumulative Impacts: The LRDP EIR, as amended (1992 SEIR), found that mitigation measures that would serve to minimize project impacts also would serve to reduce the project's contribution to cumulative toxic air contaminant levels. It also found that any regional measures intended to reduce toxic air contaminants were not within the jurisdiction of LBNL's management to implement. Although this TAC impact was not found to have met BAAQMD's threshold of significance or CEQA's Appendix G criteria for a significant cumulative impact, the LRDP EIR, as amended, conservatively identified this cumulative impact as not fully mitigated by the measures listed above "for the purposes of this SEIR."

In 1992, The Regents of the University of California adopted a Statement of Overriding Considerations for long-term ozone emissions and cumulative TACs emissions impacts as identified in the SEIR. The 1997 Addendum to the 1992 SEIR found that TAC emissions associated with development at LBNL under the LRDP through the year "20XX" would not cause ozone and TAC emissions substantially more severe than those analyzed in the 1992 SEIR because emissions would remain below the SEIR standards of significance

Setting:

The following information updates the existing conditions related to air quality in the San Francisco Bay Area Air Basin. The project site is located in the City of Oakland, within the boundaries of the San Francisco Bay Area Air Basin. The Bay Area's moderate climate steers storm tracks away from the region for much of the year. Berkeley's proximity to the refreshing onshore breezes stimulated by the Pacific Ocean provide for generally very good air quality at LBNL. However, during the ozone smog season (summer and fall), transport studies have shown that emissions generated in Oakland and Berkeley are often transported to other regions of the Bay Area and beyond (e.g., Central Valley) that are more conducive to the formation of ozone smog. In the winter, reduced solar energy and cooler temperatures diminish ozone smog formation, though increase the likelihood of carbon monoxide formation.

The federal Clean Air Act of 1970 established maximum allowable concentration criteria standards for six ambient air pollutants - ozone (smog), carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead. These criteria pollutant standards are shown in Table VIII.3a, below. Each of these standards was set to meet specific public health and welfare criteria. Individual states were given the option to adopt more stringent state standards for criteria pollutants and to include other pollutants. California has done so with many pollutants through its own clean air act. The Bay Area Air Quality Management District is the regional agency with regulatory authority over stationary sources in the Bay Area, while the California Air Resources Board (CARB) has regulatory authority over mobile sources such as construction equipment, trucks, and automobiles throughout the state. The BAAQMD has the primary responsibility to meet and maintain the state and federal ambient air quality standards in the Bay Area. These

regulated ambient air pollutants and a brief description of their predominant sources and effects are provided in Table VIII.3a.

Both the state and federal Clean Air Acts require areas to be classified either as either *attainment* or *non-attainment* for each criteria pollutant, based on whether or not the state and national standards have been achieved. Therefore, areas in California have two sets of attainment/non-attainment designations: one for the federal standards and one for the state standards. The Bay Area Air Basin is currently designated as nonattainment for state ozone standards and the federal 1-hour ozone standard, although ozone levels measured in the Berkeley and Oakland area have not exceeded the standard in the past four years (BAAQMD's monitoring network last measured an exceedance in 1993). Ozone, and ozone precursors such as reactive organic compounds and oxides of nitrogen, are the pollutants of greatest concern in the Air Basin. The Air Basin is also designated as nonattainment for the state PM-10 standard. Urbanized portions of the Bay Area (specifically known as the San Francisco - Oakland - San Jose federal planning area) are designated "maintenance" with respect to the federal carbon monoxide standard. The "maintenance" designation denotes that the area, now "attainment," had once been designated as "nonattainment." The Air Basin is designated as either attainment or unclassified for all other pollutants.

Tables VIII.3b and VIII.3c show ambient levels of ozone and carbon monoxide measured at BAAQMD's monitoring station on Alice Street in Oakland. This site is representative of the air in the vicinity of Berkeley Lab. Table VIII.3d shows PM-10 levels measured in Fremont, the nearest monitoring station in Alameda County that measures PM-10. Table VIII.3e shows trends in regional exceedances of the federal and state ozone standards. Because of the exceedances, ozone is the pollutant of greatest concern in the Bay Area. Bay Area counties experience most ozone exceedances during the period from April through October. Construction equipment, building emission sources (such as heaters), and motor vehicles traveling to LBNL would emit the ozone precursors ROG and NOx (defined in Table VIII.3a, above). These emissions may photochemically react in the presence of sunlight and warm temperatures, creating ozone smog. But often, because of wind patterns, this transformation occurs some miles distant. Thus, the project's emissions may not have a local impact and may be very small in terms of quantities, but could contribute to existing violations of state and federal ozone standards.

Hazardous and Toxic Air Emissions Sources

There are no known facilities within a ¼-mile of the LBNL site boundary that use acutely hazardous substances in excess of threshold planning quantities (SARA Title III, Community Right to Know). Consequently there is no significant impact in the area from use of acutely hazardous substances by businesses, including LBNL. "Acutely hazardous material" means any material defined pursuant to subdivision (a) of Section 25532, California Health and Safety Code.

State environmental law requires that air districts create an inventory of facilities with potential to emit specified Toxic Air Contaminants (TAC), and make this information available to the public upon request. The BAAQMD's 2000 Toxic Air Contaminant Control Program Annual Report calculates that the annual excess cancer risk in the Bay Area is about 167 per million people from stationary sources, and about 450 in a million from diesel exhaust. Thus, diesel emissions create about 70% of toxic and cancer-causing emissions found in ambient air. LBNL updates its operating permits each the Air District uses this information to update its TAC inventory.

TABLE VIII.3a
AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS EFFECTS AND SOURCES, PARTS PER MILLION (ppm) OR MICROGRAMS PER CUBIC METER (ug/m^3)

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone (O_3)	1 hour	0.09 ppm	0.12 ppm	Irritation and possibly permanent lung damage.	Motor vehicles.
	8 hours	---	0.08 ppm		
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Deprives body of oxygen in the blood. Causes headaches and worsens respiratory problems.	Primarily gasoline-powered motor vehicles. Internal combustion engines.
	8 hours	9 ppm	9.0 ppm		
Nitrogen Dioxide (NO_2)	Annual Average	---	0.05 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum-refining, industrial sources, aircraft, ships, and railroads.
	1 hour	0.25 ppm	---		
Sulfur Dioxide (SO_2)	Annual Average	---	0.03 ppm	Irritates and may permanently injure respiratory tract and lungs. Can damage plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	---		
	24 hours	0.04 ppm	0.14 ppm		
Suspended Particulate Matter (PM-10 PM-2.5)	Annual Geometric Mean	30 ug/m^3 (PM-10)	65 ug/m^3 (PM-2.5)	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	---	50 ug/m^3 (PM-10)		
	24 hours	50 ug/m^3 (PM-10)	150 ug/m^3 (PM-10) 15 ug/m^3 (PM-2.5)		
Lead	Monthly	1.5 ug/m^3	---	Disturbs gastrointestinal system and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction (in severe cases).	Present source: lead smelters, battery manufacturing and recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 ug/m^3		
Sulfates (SO_4)	24 hours	25 ug/m^3	---	Similar to sulfur dioxide	Industrial processes, refineries.
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (42 ug/m^3)	---	Very pungent odor similar to rotten eggs.	Annoying and irritating – high concentrations fatal.

SOURCE: California Air Resources Board, *Ambient Air Quality Standards*, January 25, 1999.

TABLE VIII.3b
HIGHEST 4 DAILY MAXIMUM HOURLY OZONE MEASUREMENTS AND NUMBER OF DAYS ABOVE THE HOURLY STANDARDS AT OAKLAND (822 Alice Street)
parts per million (ppm)

	1998		1999		2000		2001	
High	Apr 21	0.056	Oct 10	0.081	May 21	0.072	May 30	0.066
2nd High	Jun 14	0.049	Jul 11	0.076	Sep 17	0.069	May 6	0.059
3rd High	Mar 20	0.047	Sep 30	0.069	Apr 2	0.055	May 7	0.053
4th High	Apr 12	0.047	Oct 16	0.065	Apr 1	0.053	May 31	0.051
Days above State Standard of 0.09 ppm		0		0		0		0
Days above National Standard of 0.12 ppm		0		0		0		0

SOURCE: California Air Resources Board web site at www.arb.ca.gov April 2002

TABLE VIII.3c
HIGHEST 4 DAILY MAXIMUM 8-HOUR CARBON MONOXIDE AVERAGES AND NUMBER OF DAYS ABOVE THE 8-HOUR STANDARD AT OAKLAND (822 Alice Street)
parts per million (ppm)

	1998		1999		2000		2001	
High	Dec 28	4.58	Dec 27	5.23	Jan 5	2.69	Jan 3	3.98
2nd High	Dec 29	4.19	Dec 24	4.53	Jan 12	2.36	Jan 5	3.88
3rd High	Dec 18	3.80	Dec 15	4.30	Sep 13	2.34	Feb. 4	3.29
4th High	Dec 11	3.68	Dec 29	4.20	Jan 4	2.31	Jan. 4	3.18
Days above State Standard		0		0		0		0
Days above National Standard		0		0		0		0

SOURCE: California Air Resources Board web site at www.arb.ca.gov April 2002

TABLE VIII.3d
HIGHEST 4 DAILY PM-10 MEASUREMENTS AND
ANNUAL PM-10 STATISTICS AT FREMONT-CHAPEL WAY STATION
micrograms per cubic meter (ug/m^3)

	1998		1999		2000		2001	
High	Dec 25	62.7	Oct 21	87.9	Nov 20	58.1	Jan 7	57.6
2nd High	Apr 29	45.1	Oct 15	51.5	Jan 7	50.0	Jan 1	54.5
3rd High	Oct 20	40.8	Dec 26	50.2	Dec 20	48.1	Jan 19	43.6
4th High	Nov 13	37.4	Sep 27	48.8	Dec 8	41.8	May 19	38.1

SOURCE: California Air Resources Board web site at www.arb.ca.gov April, 2002

TABLE VIII.3e
SUMMARY OF OZONE DATA SUMMARIES FOR THE
SAN FRANCISCO BAY AREA AIR BASIN, 1990–2001

	Number of Days Standard Exceeded[a]			*Ozone Concentrations in ppm*[b]	
Year	**State 1 hr**	**Federal 1 hr**	**Federal 8 hr**	*1 Hour* ***(Max 1 hr)***	*8 Hour* ***(Max 8 hr)***
2001	15	1	7	0.13	0.100
2000	12	3	9	0.15	0.144
1999	20	3	4	0.16	0.122
1998	29	8	16	0.15	0.111
1997	8	0	0	0.11	0.084
1996	34	8	14	0.14	0.112
1995	28	11	18	0.16	0.115
1994	13	2	4	0.13	0.097
1993	19	3	5	0.13	0.112
1992	23	2	6	0.13	0.101
1991	23	2	6	0.14	0.108
1990	14	2	7	0.13	0.105

a This table summarizes the data from all of the monitoring stations within the Bay Area.
b ppm = parts per million.

SOURCE: California Air Resources Board web site at http://www.arb.ca.gov/aqd/y2d_oz/d_y2doz.htm, October 31, 2001.

Discussion:

a) The Proposed Project would be located in an area designated as nonattainment with respect to applicable state and federal ozone standards and the state PM-10 standard. As required by state and federal laws, there are three plans for the Bay Area Air Basin developed in part by BAAQMD to meet federal and state air quality planning requirements. They are:

- Bay Area 2001 Ozone Attainment Plan for the 1-Hour National Ozone Standard developed to meet federal ozone air quality planning requirements;

- Bay Area 2000 Clean Air Plan, the most recent triennial update of the *1991 Clean Air Plan* developed to meet planning requirements related to the state ozone standard; and

The 1996 Carbon Monoxide Redesignation Request and Maintenance Plan for Ten Federal Planning Areas, developed by the air districts with jurisdiction over the ten planning areas including the BAAQMD to ensure continued attainment of the national carbon monoxide standard. In June 1998, the U.S. EPA approved this plan and designated the ten areas to attainment. The maintenance plan was revised in October 1998.

Proposed Project

Construction Emissions

As stated in the *Project Description*, the proposed Molecular Foundry building and roadway segment would be constructed on a site created by cutting and filling about 32,000 cubic yards of earth and rock. All excavated material would be used on site, and there would be no trucking material off-site (balanced cut and fill). Grading would occur from about April to September 2004. Equipment would be standard diesel-powered loaders, excavators, bulldozers, and trucks. No blasting would occur. Any building foundation piers would be drilled rather than driven. Utility relocation, including trenching, would occur from about February 2004 to February 2006.

Trucks would arrive on-site delivering building materials and concrete for foundations. Building construction might involve compressors, pneumatic equipment such as drills and nut drivers, cranes, forklifts, and other equipment. A rotary drill rig, likely powered by diesel engines, would bore holes for pilings as part of the foundation.

Construction activities associated with the project would create PM-10 and ozone precursor emissions. However, there are no published construction emission thresholds, and the BAAQMD has accounted for construction emissions in its Clean Air Plan. In addition, air impacts due to LBNL construction activities consistent with LRDP growth projections were analyzed in the LRDP EIR, as amended; the proposed Molecular Foundry project is consistent with the LRDP and the EIR and is covered under that analysis. With the implementation of LRDP EIR, as amended, Mitigation Measure III-J-1, there would be no significant impact from construction-related fugitive dust emissions.

Operational Emissions

Project operation would result in emissions primarily from the increase in motor vehicle trips to the site and, to a lesser extent, from other area and on-site stationary sources (such as natural gas combustion for space and water heating, and landscaping). The project would also create increased electric energy demand from air conditioning and heating equipment. Electricity demand requires more fossil fuel combustion at regional power plants. This would not affect the immediate area but would add incrementally but not measurably to the regional pollutant burden of ozone precursors, particularly oxides of nitrogen. A new diesel emergency generator and an associated 3,000-gallon above ground fuel tank are proposed as part of the project. Exhaust emissions will be controlled by an abatement device. Emissions associated with this generator would be determined and limited by the Permit to Operate that would be required from the BAAQMD. BAAQMD would perform a risk assessment on air emissions from this generator as part of reviewing the permit application to ensure that impacts do not exceed District significance thresholds.

Mobile source emissions would include emissions from trucks and delivery vehicles, and employee commute trips. Approximately 130 new employees and students would use the Molecular Foundry, approximately 95 of whom would be potential new "drivers" to the site.[9] LBNL offers carpooling privileges and shuttle bus services to its employees to reduce driving of personal vehicles. The BAAQMD considers emissions from projects generating fewer than 2,000 trips per day to be less than significant, since this number of trips is not likely to exceed the 80 pounds per day significance threshold established by the District for ROG, NOx, and PM-10. The Proposed Project would generate well below 1,000 trips per day, and is estimated to result in far less than the 80 pounds per day significance threshold established by BAAQMD.

Project-related emissions would not be expected to conflict with or obstruct implementation of any applicable air quality plans, including the Ozone Attainment Plan, the Clean Air Plan, and the Carbon Monoxide Maintenance Plan. In addition, the Proposed Project would not violate any applicable air quality standard or contribute substantially to any existing or projected air quality violations. Furthermore, it would not result in a cumulatively considerable net increase of ozone and its precursors (i.e., ROG and oxides of Nitrogen), or PM-10. Air impacts due to LBNL operational activities consistent with LRDP growth projections were analyzed in the LRDP EIR, as amended; the proposed Molecular Foundry project is consistent with the LRDP and the EIR and is covered under that analysis.

Hazardous and Toxic Air Emissions

The proposed laboratory would use many types of chemicals, most of which would be kept and used on-site in small quantities. The laboratory has written procedures to guide personnel in specific methods of storing these chemicals in correct containers and safety cabinets. Individual laboratories would contain fume hoods—for a combined building total of 48 fume hoods—which would be vented to the outside atmosphere at the building rooftop. Discharge from the fume exhaust would meet vertical velocity and stack height requirements. LRDP EIR, as amended, Mitigation Measure III-J-2 would require construction of a building ventilation system to minimize criteria air pollutants. Wind analysis would be conducted during project design to ensure that placement

[9] Out of 137 Molecular Foundry occupants, 6 would be "directors" currently on staff at LBNL whose current positions would not be replaced; approximately 36 would be UC Berkeley graduate students who would not have driving privileges at LBNL. This would leave about 95 new potential drivers among the Molecular Foundry staff.

of exhaust stacks on the roof would not cause re-entrainment of exhaust into fresh air intake ducts, which would be located on or near the rooftop of the Molecular Foundry building. A Preliminary Hazard Analysis Report is under preparation for the Proposed Project by LBNL and will be completed at the time of final project design.

BAAQMD has a regulatory structure in place to evaluate the health risks associated with routine TAC emissions from any activity. Most applicable to the Molecular Foundry, BAAQMD's permitting program establishes risk-based TAC emission thresholds for new or modified sources. The need for an operating permit for the Molecular Foundry's laboratory activities would be assessed from emissions estimates made closer to actual construction of the facility. If these estimates remain consistent with current estimates for the Proposed Project as well as emissions from other research laboratories at LBNL, the Molecular Foundry would qualify for BAAQMD's permit exemption for research laboratories. BAAQMD's permitting process ensures that proposed emissions from a project are less-than-significant, and if necessary, BAAQMD would impose project conditions to reduce projected emissions to conform to District significance standards before issuing a permit. BAAQMD has integrated TAC reporting into their permitting program. LBNL submitted a facility-wide TAC emissions inventory in the early 1990s in compliance with the Air Toxics Hot Spots Program (Assembly Bill 2588). New information is provided to BAAQMD via air emissions permit applications and renewals. BAAQMD publishes an annual report on TAC emissions for all facilities in their district. In the most recent report, LBNL TAC emissions continued to remain below the listing thresholds.

The Molecular Foundry laboratories would contain small amounts of chemicals similar to those found in other LBNL scientific facilities. These types of chemicals are those typically used in hospitals and medical and research laboratories and pose little environmental risk when used in typical research quantities following accepted research procedures. The completed Hazard Analysis Report will provide estimates of the types and amounts of chemicals, and the associated types of experiments that would be conducted. These chemicals include organic solvents and toxic metals, such as cadmium and arsenic. Chemicals used in laboratories would generally be handled in very small quantities that are typical of bench-top research activities. This is consistent with the nature of the experiments that deal with substances and properties on a micro- and nano-scale. In addition, the proposed Molecular Foundry project would not include the use of radioactive materials. For these reasons, emissions-related public health risks would be extremely small and there would be no significant air quality public health risk from laboratory activities.[10]

The Proposed Project would not create or substantially contribute to a significant TAC impact. Emissions of TACs are regulated by their projected risk to any individual located outside the LBNL property, regardless of the land use designation (e.g., commercial, residential, or industrial). The risk from TAC emissions near the Molecular Foundry site is expected to remain below BAAQMD thresholds. The buffer areas and University lands that surround LBNL further lower the risk levels at the nearest residential areas, which are approximately one-third mile to the south. At that distance, operational TAC emissions concentrations from the Proposed Project are expected to be extremely small or immeasurable. According to the BAAQMD CEQA Guidelines, a project is expected to have a less-than-significant cumulative TAC impact if it does not pose an individually significant TAC

[10] Current estimates indicate that concentrations of TAC emissions from the proposed project would be so low at the nearest residential neighborhood (Panormaic Hill) as to be immeasurable or extremely small using commerically-available analytical methods. In fact, preliminary screening estimates indicate that the entire expected annual chemical inventory of the proposed Molecular Foundry would be so small that, were it to be emitted at a very conservative 100% annual rate, the vast majority of these chemicals would be unlikely to even approach BAAQMD permitting thresholds at the much closer LBNL fenceline. Also, refer to Appendix E.

impact and is consistent with the governing general plan. That general plan should provide for appropriate buffer zones to protect sensitive receptors from TAC emissions. The LBNL LRDP maintains appropriate designated buffer areas between the proposed Molecular Foundry site and the nearest residential areas. The Proposed Project therefore meets the BAAQMD requirements.

Furthermore, the Proposed Project is expected to neither create nor measurably contribute to any local toxic air contaminant "hot spots," as defined by the BAAQMD. "Hot Spots," pursuant to California Assembly Bill 2588, are regions, either small or large, where individual or cumulative levels of TAC exceed safety or significance risk thresholds. Annually, LBNL submits operating permit applications to the BAAQMD, that the agency uses to determine the existence of any Hot Spots in the Bay Area. There are no identified hot spots in the area to which the Proposed Project would measurably contribute.

LRDP EIR, as amended, Mitigation Measures IV-K-1, IV-K-2a, IV-K-2b, IV-K-3, IV-K-5, and IV-K-6 would assure adequate shipping, treatment, storage and/or disposal of hazardous wastes, continuation of LBNL's waste minimization programs, use of licensed hazardous waste haulers, implementation of employee communication and training requirements for hazardous wastes, and continued updating of LBNL's emergency preparedness and response programs on an annual basis (additional discussion provided in 6. *Hazards and Hazardous Materials*, below).

Therefore, residents near the project would not be exposed to significant levels of hazardous air pollutants as a result of the new laboratory being built and used for its intended purpose.

b) Compliance of the project with the LRDP EIR, as amended, Mitigation Measure III-J-1, as discussed above, would ensure that project construction would not lead to violation of any air quality standard or contribute substantially to an existing or projected regional air quality exceedance. As also described above, operational emissions of the project would be well below the thresholds established by the BAAQMD for project-level analysis. Therefore these emissions would not lead to or contribute substantially to an exceedance of any ambient air quality standard.

c) As discussed above, operational emissions from project-related motor vehicle trips and on-site stationary sources would be below the BAAQMD thresholds of 80 pounds per day for ROG, NOx and PM-10. Therefore the contribution of the Proposed Project to any cumulatively considerable impact due to development in Oakland, Berkeley, and in the rest of the Bay Area would be less than significant.

d) During construction, the Proposed Project could expose nearby LBNL employees to fugitive dust. However, implementation of LRDP EIR, as amended, Mitigation Measure III-J-1 would meet BAAQMD suggested measures to reduce the impact to a less than significant level. During project operations, as discussed above, the project would generate less than significant levels of air pollutants.

e) The project would contain no sources capable of creating any objectionable odors and, therefore, the project would not create objectionable odors.

Cumulative Impacts:

Although cumulative air impacts are covered by the 1992 Statement of Overriding Consideration by The Regents, the Proposed Project would not result in any significant cumulative air quality impacts. It would not pose any individually

significant air impacts. It would be consistent with the LBNL Long Range Development Plan, and would neither conflict with nor obstruct implementation of the Ozone Attainment Plan, the Clean Air Plan, nor the Carbon Monoxide Maintenance Plan. The Proposed Project would not violate any applicable air quality standard or contribute substantially to any existing or projected air quality violations. It would not result in a cumulatively considerable net increase of any criteria pollutant, including ozone and its precursors (i.e., ROG and oxides of Nitrogen), or PM-10. No construction or operational emissions—either criteria pollutants or toxic air contaminants—would be expected to exceed any regional, state, or federal thresholds of significance. As operational details and estimates are further developed, the Molecular Foundry project would undergo review and permitting processes from BAAQMD for operational emissions and potential emergency diesel generator emissions. The Proposed Project would implement feasible measures to further reduce construction and operational air impacts of construction and operations and would prohibit significant health risks through its discretionary permitting authority.

The Proposed Project would not create or substantially contribute to a significant TAC impact. Project emissions of TACs are expected to be very low in general and negligible based on the distances and directions to the nearest residential areas. Moreover, there are no nearby significant ambient TAC concentrations to which the project might cumulatively contribute, and any contribution by the Proposed Project would not be cumulatively considerable in any event.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None. The Proposed Project would incorporate LRDP EIR, as amended, Mitigation Measures III-J-1 and III-J-2. As a result, the project would result in no significant impacts to air quality resulting from construction and generation of criteria pollutants as a part of the laboratory operations.

Molecular Foundry Project-Specific Mitigation Measures: None required.

Sources:

Bay Area Air Quality Management District, *CEQA Guidelines*, 1999.

California Air Resources Board air quality designations: http://www.arb.ca.gov/desig/desig.htm.

California Air Resources Board air quality plans: http://www.arb.ca.gov/planning/planning.htm.

Bay Area Air Quality Management District Air Plans: http://www.baaqmd.gov/planning/cap/aqp.htm.

Bay Area Air Quality Management District, *2000 Toxic Air Contaminant Control Program Annual Report*, December 2001, http://www.baaqmd.gov/permit/toxics/report.htm.

LBNL, Memorandum: *Environmental Sampling at the Proposed Molecular Foundry Site*, February 1, 2002.

Lawrence Berkeley National Laboratory, *Draft and Final Environmental Impact Report for the 1987 Site Development Plan*, (SCH# [19]85112610), August 1987.

Lawrence Berkeley National Laboratory, *Draft and Final Supplemental Environmental Impact Report (SEIR) for the Proposed Renewal of the Contract Between the United States Department of Energy and the Regents of the UC for the Operation and Management of the Lawrence Berkeley Laboratory*, SCH# [19]91093068, prepared by the

University of California and Lawrence Berkeley Laboratory, with the assistance of Ira Fink and Associates, Inc., September 1992.

Lawrence Berkeley National Laboratory, *Supplemental Environmental Impact Report Addendum for the Proposed Renewal of the Contract Between the United States Department of Energy and the Regents of the UC for the Operation and Management of the Lawrence Berkeley Laboratory*, SCH# [19]91093068, September 1997.

Smith Group, *Concept Design Report, Molecular Foundry Facility, Lawrence Berkeley National Laboratory*, April 15, 2002.

4. BIOLOGICAL RESOURCES

LRDP EIR, as amended:

An impact of any LBNL project on biological resources would be considered significant if it exceeded the following Standards of Significance, established by the LRDP EIR, as amended:

- Substantially reduce the number or restrict the range of a rare, endangered, or threatened plant or animal species;
- Cause fish or wildlife levels to drop below self-sustaining levels; or
- Adversely affect significant riparian lands, wetlands, marshes, or other wildlife habitats.

The following relevant impacts to biological resources have been anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which the present analysis is tiered:

Impact III-D-1:	Continued University operation of LBNL, including continued implementation of the 1987 LRDP, is not expected to restrict the number or reduce the range of any rare, endangered, or threatened plant or animal species, or to cause existing fish or wildlife populations to drop below self-sustaining levels.
Impact III-D-2:	Continued University operation of LBNL, including continued implementation of the LRDP, will result in the loss of some vegetation, including potential loss of mature trees and areas with some habitat for non-critical species.

As a result of anticipated impacts to biological resources, the following mitigation measures, adopted as part of the LRDP EIR, as amended, are already required for the Proposed Project, and are therefore incorporated as part of the Proposed Project's description:

Mitigation Measure III-D-2a:	Revegetation of disturbed areas, including slope stabilization sites, using native shrubs, trees, and grasses will be included as a part of all new projects.

Mitigation Measure III-D-2b:	Invasion of opportunistic colonizer trees and shrubs will be controlled. A maintenance program for controlling further establishment of eucalyptus, green wattle acacia, French broom, cotoneaster, and other opportunistic colonizer shrubs and trees in disturbed areas on-site will be undertaken. Herbicides will not be used for this purpose.
Mitigation Measure III-D-2c:	Removal of native trees and shrubs will be minimized. (To the greatest extent possible, the removal of large coast live oak, California bay, and Monterey pine trees will be avoided.)
Mitigation Measure III-D-2d:	Disturbance to the site perimeter buffer zones will be minimized.
Mitigation Measure III-D-2e:	LBNL activity and encroachment in Blackberry Canyon will be minimized.

Discussion:

a) The Proposed Project is located in the steep ridges and draws on the western side of the Oakland-Berkeley hills, in the general area of Blackberry and Strawberry Canyons and within the Strawberry Canyon watershed. No Name Creek and Chicken Creek, tributaries to Strawberry Creek, are located downslope from the project site, and Strawberry Creek itself is approximately 0.1 miles to the southeast at its closest point to the site. Vegetation on and adjacent to the Proposed Project site is primarily non-native annual grassland, and the site is located between existing multi-story buildings to the northwest and southeast.

Review of the California Natural Diversity Database (CNDDB) (2002) for the Oakland East, Oakland West, Richmond, and Briones Valley 7.5 minute quadrangles indicates a generally low potential for adverse impacts to legally protected animal species. Many of the species on the list are associated with either wetlands or salt-water habitats within these quadrangles, and the non-native grassland characteristic of the site does not provide the required habitat for these particular species.

The Alameda whipsnake (*Masticophis lateralis euryxanthus*; listed as threatened under both federal and state regulations) is found in shrub communities and adjacent habitats (U.S. Fish and Wildlife Service, 2000). Habitats adjacent to brush communities may be crucial to Alameda whipsnakes, which remain in grassland habitats near shrub areas for up to several weeks at a time (U.S. Fish and Wildlife Service, 2000). Other typical habitat elements for this species include rock outcrops, which provide areas where prey (particularly lizards) may be found and where whipsnakes may find shelter.

The project site is close to designated critical habitat for the Alameda whipsnake (it is approximately 500 feet north of the nearest critical habitat boundary). After it conducted site visits during the summer of 2000, the U.S. Fish and Wildlife Service (USFWS) determined that the future proposed Molecular Foundry project site and surrounding areas, along with certain other LBNL areas, should be excluded from its final critical habitat listing (U.S. Fish and Wildlife Service, 2000). Since the Proposed Project site was excluded from the final listing by the USFWS, it is not considered to be critical habitat of the Alameda whipsnake. The closest shrub community to the Proposed Project site is an area of north coastal scrub that is approximately 1500 feet to the east and separated from it by roads and other development within the LBNL site (McGinniss, 1996). Alameda whipsnakes can be found well away from shrub communities. However, the habitat value of grasslands on the project area is

attenuated by the distance from the shrub area, the potential dispersal barrier produced by existing development, and the lack of rock outcrops both on the site and in the surrounding area. On-site grassland habitat value is further reduced by annual vegetation management for fuel reduction purposes, which includes reduction of grass and shrub heights, either with goats or by mechanical means, and removal of non-native trees within 100 feet of existing buildings. Such reduction of vegetative cover further reduces the possibility that whipsnakes would use the area as a dispersal corridor.

A number of protected butterfly species also potentially occur in the project area. However, since the site is dominated by non-native grassland, with no larval host plants present, suitable habitat does not exist for the Bay checkerspot butterfly (*Euphydras editha bayensis*; federally listed as threatened) or the Callipe silverspot butterfly (*Speyeria callippe callippe*; federally listed as endangered). The monarch butterfly (*Danaus plexippus*; a state special status species) roosts in eucalyptus groves; however, no suitable groves are located near the site.

The site lies upslope from the Chicken Creek and Strawberry Creek drainages; therefore, it is possible that the California red-legged frog (*Rana aurora draytonii*; federally listed as threatened and a State species of special concern), the western pond turtle (*Clemmys marmorata*, a State species of special concern), and the foothill yellow-legged frog (*Rana boylii*, a State species of special concern) might be present in the general area of the project site. However, the site itself does not provide suitable habitat for these species, and it is unlikely that they would migrate through it, since the site is not located between creek drainages and other suitable habitat. Another amphibian, the California tiger salamander (*Ambystoma californiense*, a State species of special concern) requires seasonal pools for breeding, but the site and its surroundings do not provide suitable habitat. The Berkeley kangaroo rat (*Dipodomys heermani berkeleyensis*, a State special status species) is apparently extinct, and in any event the site provides no suitable habitat, since the density of the grassland vegetation is greater than is generally suitable for kangaroo rats.

The project site potentially provides a small amount of foraging habitat for golden eagles (*Aquila chrysaetos*, a State species of special concern) and for the white-tailed kite (*Elanus leucurus*, a State special status species). Although the amount of existing development and activity proposed in the area of the site will lower its value as foraging habitat, the site is relatively small. Consequently, no significant adverse impacts to these species are expected.

A thorough review and analysis of special status plant species listed by the CNDDB (2002) and CNPS (2002) databases as occurring in the Oakland East, Oakland West, Richmond, and Briones Valley USGS 7.5 minute quadrangles indicates that the likelihood of adverse project impacts for most of the species listed is extremely low due to the following reasons:

- suitable habitat for a species either never existed on the project site or no longer does due to historical and ongoing disturbance of soils and vegetation;
- a species is not documented within the general vicinity of the project site, i.e., the western side of the Oakland-Berkeley Hills;
- only historical occurrences for a species are documented;
- a species has been extirpated from the quadrangle or county.

There are two special status plants listed in the databases as occurring further downslope from the project site in Strawberry Canyon. The first of these, western leatherwood (*Dirca occidentalis*) has not been found within the project footprint. This shrub occurs almost exclusively on north-facing slopes, as an element of coastal scrub or oak woodland communities. The second, robust monardella (*Monardella villosa* ssp. *globosa*), is documented historically from the area. However, this species is generally found in chaparral and no suitable habitat remains within or near the project footprint.

Although the site is not located in USFWS-designated critical habitat, due to the potential for Alameda whipsnake movement into the project area, mitigation measures would be prudent to ensure that whipsnakes are protected to the greatest extent possible during project construction. Without proper mitigation, this would be considered a potentially significant impact for the purposes of this analysis. The mitigation measures presented below are based on avoidance measures developed in informal consultation with USFWS during site surveys for the water tank and fire road realignment components of the LBNL Sitewide Water Distribution Upgrade project. The incorporation of these mitigation measures into the project resulted in an informal determination that the Sitewide Water Distribution Upgrade project would not be likely to adversely affect the Alameda whipsnake or its critical habitat (USFWS 2001; LBNL NEPA/CEQA Program 2001; J. Philliber, pers. com. 2002)

Molecular Foundry Mitigation Measure 1: Prior to the initiation of excavation, construction, or vehicle operation, the project area shall be surveyed by a designated monitor, trained in Alameda whipsnake identification and ecology by a qualified biologist, to ensure that no Alameda whipsnakes are present. This survey shall not be intended to be a protocol-level survey, but rather one designed to verify that no snakes are actually on site.

Molecular Foundry Mitigation Measure 2: All on-site workers shall attend an Alameda whipsnake information session conducted by the designated monitor. This session shall cover identification of the species and procedures to be followed if an individual is found on site.

Molecular Foundry Mitigation Measure 3: All lay-down and deposition areas shall be inspected each morning by the designated monitor to ensure that Alameda whipsnakes are not present. All construction activities that take place on the ground shall be performed in daylight hours. Vehicle speed on site shall not exceed 15 miles per hour. Construction materials, soil, construction debris, or other material shall be deposited only on areas where vegetation has been mowed and any snakes present would be readily visible.

Molecular Foundry Mitigation Measure 4: The site is subject to annual vegetation management involving the close-cropping of all grasses and ground cover on the project area; this management shall be done prior to initiation of construction. Re-mowing shall be done if grass or other vegetation on the project site becomes high enough to conceal whipsnakes during the construction period.

Implementation of the above project-specific mitigation measures would reduce a potentially significant impact to a less-than-significant level.

b) Although the project is located within 500 feet of Chicken Creek, there would be no adverse effects on the creek or the riparian habitat lining its banks, nor would the project result in any impacts to the riparian corridor along Strawberry Creek. Standard erosion control measures would be used to ensure that sediment generated by construction would not enter the creeks. Additional runoff generated by the new building would be relatively minimal and would be routed into existing storm drains. The CNDDB lists several sensitive natural communities

as occurring in the USGS quadrangles searched, including northern maritime chaparral, serpentine bunchgrass, and valley needlegrass grassland. However, none of these communities occur on or in the vicinity of the project site.

c) The Proposed Project would not result in adverse effects on federally protected wetlands, as no wetlands or streams occur on or in the immediate vicinity of the project site.

d) Due to the fact that the proposed project site and its surroundings have been subject to frequent and ongoing disturbance and the daily presence of humans in and around site, the project is not expected to interfere with the movement of resident or migratory wildlife, nor is it expected to interfere with the use of native wildlife nursery sites. The project site is not part of an established wildlife corridor.

e) The LBNL site is generally not subject to local ordinances and policies; nevertheless, the project would not conflict with any local policies or ordinances protecting biological resources.

f) There are no Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plans that apply to the LBNL site.

h) With the implementation of the project-specific mitigation measures noted above, and with the mitigation measures identified in the LRDP EIR, as amended, the Proposed Project would not exceed the Standards of Significance identified in the LRDP EIR, as amended.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by the LRDP EIR, as amended: Mitigation Measures 4.a through 4.d are added to fully mitigate potential impacts to the Alameda whipsnake.

Molecular Foundry Project-Specific Mitigation Measures: See Mitigation Measures 4.a through 4.d, above.

Sources:

California Department of Fish and Game, *California Natural Diversity Database, version 2.1.2,* data request for the Oakland East, Oakland West, Briones Valley, and Richmond 7.5 minute USGS topographic quadrangles, 2002.

California Native Plant Society, *Electronic Inventory of Rare and Endangered Plants of California, version 1.5.1*, data request for the Oakland East, Oakland West, Briones Valley, and Richmond 7.5 minute USGS topographic quadrangles.

Lawrence Berkeley National Laboratory, *Draft and Final Environmental Impact Report for the 1987 Site Development Plan*, (SCH# [19]85112610), August 1987.

Lawrence Berkeley National Laboratory, *Draft and Final Supplemental Environmental Impact Report (SEIR) for the Proposed Renewal of the Contract Between the United States Department of Energy and the Regents of the UC for the Operation and Management of the Lawrence Berkeley Laboratory*, SCH# [19]91093068, prepared by the University of California and Lawrence Berkeley Laboratory, with the assistance of Ira Fink and Associates, Inc., September 1992.

Lawrence Berkeley National Laboratory, *Supplemental Environmental Impact Report Addendum for the Proposed Renewal of the Contract Between the United States Department of Energy and the Regents of the UC for the Operation and Management of the Lawrence Berkeley Laboratory*, SCH# [19]91093068, September 1997.

Lawrence Berkeley National Laboratory, NEPA/CEQA Program, *Project Description for the Proposed Sitewide Water Distribution Upgrade, Phase 1* (submitted in support of request for a Categorical Exemption), October 2001.

McGinniss, S.M., *An evaluation of potential habitat sites for the Alameda whipsnake (Masticophis lateralis euryxanthus) within and immediately adjacent to the border of the Lawrence Berkeley National Laboratory, Berkeley, California*, prepared for: Elton Beck Associates, Point Richmond, CA, May 18, 1996.

Philliber, Jeff, Planner, NEPA/CEQA Program, Lawrence Berkeley National Laboratory, email re: Alameda Whipsnake, Aug. 30, 2002.

U.S. Fish and Wildlife Service, *Endangered and threatened wildlife and plants; final determination of critical habitat for the Alameda whipsnake (Masticophis lateralis euryxanthus)*, Federal Register Volume 65, Number 192, October 3, 2000.

5. CULTURAL RESOURCES

LRDP EIR, as amended:

The impact of LBNL projects on cultural resources would be considered significant if they would exceed the following Standards of Significance, established by the LRDP EIR, as amended:

- Disrupt or adversely affect a prehistoric or archaeological site, or a property of historic or cultural significance to a community or ethnic or social group, or a paleontological site, except as part of a scientific study; or
- Affect a local landmark of local cultural/historic importance.

The following relevant impacts to cultural resources have been anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which this analysis is tiered:

Impact III-E-1:	Continued University operation of LBNL, including continued implementation of the 1987 LRDP, while resulting in removal of substandard buildings, is not expected to adversely impact any significant prehistoric, archaeological, or paleontological site, or any property of historic or cultural significance, other than the Laboratory itself.
Cumulative Impacts:	No significant cumulative impacts to archaeological or historical resources at and in the vicinity of LBNL are anticipated.

The LRDP EIR, as amended, does not contain cultural resources mitigation measures that would be applicable to the Proposed Project. All potential impacts were found to be less than significant impact.

Discussion:

a) As part of the environmental analysis for the 1987 LRDP EIR (SEIR), all undeveloped land and proposed building locations (including the proposed Molecular Foundry site) were examined for potential historical and archaeological resources. According to the SEIR, all reasonably accessible parts of the LBNL area were examined. Special attention was given to areas of relatively flat land or rock outcrops. The steep hillsides were not examined intensively, although transects through accessible areas were made. Based on the findings of the historic and archaeological resources survey, no indications of historic or prehistoric archaeological resources were encountered in any location within the project site.

b) As indicated in the 1987 SEIR (described in item "a" above), there are no known archaeological resources in the vicinity of the project site. Therefore, it is unlikely that development of the Proposed Project would cause an adverse change to any unique archaeological resource.

c) According to the 1987 SEIR (described in item "a" above), there are no known paleontological resources in the vicinity of the project site. However, it is possible that archaeological and/or paleontological artifacts could be unexpectedly discovered during construction.

Molecular Foundry Mitigation Measure 5: If an archaeological and paleontological artifact were discovered on-site during construction, all activities within a 50-foot radius would be halted and a qualified archaeological/paleontological monitor would be summoned within 24 hours to inspect the site. If the find were determined to be significant and to merit formal recording or data collection, time and funding would be required to salvage the material. Any archaeologically important data recovered during monitoring would be cleaned, catalogued, and analyzed, with the results presented in a report of finding that satisfies professional standards.

Implementation of the above project-specific mitigation measure would further reduce a less-than-significant impact.

d) Since the project is unlikely to contain any archaeological and paleontological resources, it would also be unlikely to encounter human remains in the vicinity of the project site. If human remains should be encountered during construction, work would be halted and procedures described in item "c" above would be implemented.

e) The Proposed Project would not exceed the Standards of Significance established by the LRDP EIR, as amended.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None.

Molecular Foundry Project-Specific Mitigation Measures: None required. Molecular Foundry Mitigation Measure 5 is provided to further reduce less-than-significant impact to archaeological resources.

Sources:

Lawrence Berkeley Laboratory, *Draft and Final Supplemental Environmental Impact Report (SEIR) for the Proposed Renewal of the Contract Between the United States Department of Energy and the Regents of the UC for the Operation and Management of the Lawrence Berkeley Laboratory*, prepared by the University of California and Lawrence Berkeley Laboratory, with the assistance of Ira Fink and Associates, Inc., September 1992.

6. GEOLOGY AND SOILS

LRDP EIR, as amended:

The potential exposure of LBNL projects to unstable geologic and soil conditions would be considered significant if, as established by the LRDP EIR, as amended, it would result in development in the following areas, identified by the LRDP EIR, as amended:

- Which are located within an Alquist-Priolo Special Studies Zone, or within a known active fault zone, or an area characterized by surface rupture that might be related to a fault;
- Where the substrate consists of material that is subject to liquefaction or other secondary seismic hazards in the event of groundshaking;
- Where there is evidence of seismic hazards, such as landsliding or excessively steep slopes, that could result in slope failure;
- Which are in the vicinity of soil that is likely to collapse, as might be the case with karst topography, old mining properties, or areas of subsidence caused by groundwater drawdown;
- Where soils are characterized by shrink/swell potential that might result in deformation of foundations or damage to structures; and
- Which are located next to a water body that might be subject to tsunamis or seiche waves.

The following relevant impacts, resulting from exposure to unstable geologic or soil conditions, have been anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which this analysis is tiered:

Impact III-B-1:	There could be significant impacts on people or property due to continued operation and the development of LBNL facilities in areas susceptible to surface rupture. There may be potential adverse impacts to people and property at the site caused by groundshaking, landsliding, lurching, and differential compaction during a seismic event.
Impact III-B-2:	Soil erosion, sedimentation and landsliding caused by construction work may adversely affect the stability of LBNL buildings placed on the site.
Cumulative Impacts:	No significant adverse cumulative impacts upon people or property are anticipated in or in the vicinity of LBNL as a result of geologic and/or soils hazards.

As a result of anticipated exposure to geologic and/or unstable soil conditions, the following mitigation measures, adopted as part of the LRDP EIR, as amended, are already required for the Proposed Project, and are therefore part of the Proposed Project's description:

Mitigation Measure III-B-1:	Geologic and soils studies will be undertaken during the design phase of each LBNL building project. Recommendations contained in those studies would be followed to ensure that the effects of landsliding, lurching, and liquefaction potential will not represent a significant adverse impact during a seismic event.
Mitigation Measure III-B-2a:	Excavation and earth moving will be designed for stability, and accomplished during the dry season when feasible. Drainage will be arranged to minimize silting, erosion, and landsliding. Upon completion, all land will be restored, covering exposed earth with planting.
Mitigation Measure III-B-2b:	Foundations for proposed structures will be designed in accordance with geologic and soils engineering recommendations to minimize the long-term possibilities of landslide.
Mitigation Measure III-B-2c:	Excavations will be shored as required by law to preclude minor short-term landslides during construction.
Mitigation Measure III-B-2d:	Revegetation of disturbed areas, including slope stabilization sites, using native shrubs, trees, and grasses will be included as part of all new projects.

Discussion:

a(i), a(ii): The Proposed Project is located in the San Francisco Bay Area, which, due to the presence of the San Andreas Fault System, is a region of significant seismic activity. Recent studies sponsored by the United States Geological Survey (USGS) estimate that there is a 70 percent likelihood of a Richter magnitude 6.7 or higher earthquake occurring in the Bay Area in the next 30 years. The project site could experience a range of ground- shaking effects during an earthquake on one of the active earthquake faults in the San Francisco Bay Area. Excessive groundshaking could also cause secondary ground failures such as seismically-induced landslides, surface rupture, and differential settlement that could expose people to the risk of injury and cause structural damage to buildings. The Hayward fault, one of the major active faults in the San Andreas System, extends along the eastern side of the San Francisco Bay and is located 0.3 miles from the project site. Ground-shaking intensities from a major seismic event on the Hayward fault could generate ground motion approaching or exceeding a Peak Ground Acceleration of 0.7g. Ground motion of this type would be characterized by the Modified Mercalli Intensity Scale as violent to very violent (ABAG, 2002).[11] Geotechnical investigations conducted at the project

[11] While the magnitude is a measure of the energy released in an earthquake, intensity is a measure of the ground-shaking effects at a particular location. Shaking intensity can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. The Modified Mercalli (MM) intensity scale is commonly used to measure earthquake effects due to groundshaking. The MM values for intensity range from I (earthquake not felt) to XII (damage nearly total). MM intensities ranging from IV to X could cause moderate to significant structural damage. ***Acceleration*** is scaled against a value that everyone is familiar with, that is, acceleration due to gravity or the acceleration with which a ball falls if released at rest in a vacuum (1.0g). Acceleration of 1.0g is equivalent to a car traveling 100 meters (328 feet) from rest in 4.5 seconds. Acceleration is expressed by a "g" which is gravity = 980 centimeters per second squared.

site have estimated peak bedrock accelerations of 0.70g from an earthquake occurring on the Hayward fault,[12] and 0.40g from an earthquake occurring on the San Andreas Fault, located approximately 19 miles southwest of the project site. As a comparison, ground motion during the 1989 Loma Prieta earthquake at the Santa Cruz Mountain epicenter reached 0.64g. Due to its close proximity to the project site, the Hayward fault is likely to generate the most significant levels of groundshaking. Earthquakes and groundshaking in the Bay Area are unavoidable and expected to occur at some time during the life of the project. Although some structural damage is typically not avoidable, building codes and local construction requirements have been established to protect against building collapse and major injury during a seismic event. The Proposed Project would comply with requirements of the 1998 California Building Code, LBNL's Facilities Department Project & Design Management Procedures Manual "Lateral Force Design Criteria," and federal standards. In addition, the seismic design of the project would comply with the latest UC seismic safety policies. The design would exceed the requirements of the California Building Code (CCR Title 24) and comply with the more stringent local building code (LBNL Standard RD 3.22). As part of the project, a Conceptual Design Report has been prepared that accounts for all loads to which the structure may be subjected, including dead, live, wind, and seismic, and that incorporates recommendations provided in the preliminary geotechnical report prepared for the project site to reduce ground-shaking hazards, as required by Mitigation Measure III-B-2a, listed above.

An engineering analysis report and drawings, and relevant grading or construction activities on the project site, would be required by Mitigation Measure III-B-2a to address constraints and incorporate recommendations identified in the geotechnical investigations. Considering that the Proposed Project would be constructed in conformance with the California Building Code, LBNL requirements, and federal regulations and guidelines, the risks of injury and structural damage from groundshaking would be reduced and the impacts would be less than significant.

The project site is not within the most recently delineated Alquist-Priolo Earthquake Fault zone.

a(iii), a(iv): The project site is not located in an area identified by the California Geological Survey (CGS) as being susceptible to liquefaction hazards, and the geotechnical report prepared for the project site did not identify liquefiable soils. Potential liquefaction hazards are therefore considered less than significant.

The project site is located in a CGS-designated Seismic Hazard Zone for earthquake-induced landslides. The Seismic Hazards Mapping Act (SHMA) was enacted in 1990 to protect the public from the effects of strong groundshaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. Before project approval is granted for a site within a seismic hazard zone, a geotechnical investigation must be conducted and appropriate mitigation measures incorporated into the project design. The CGS Special Publication 117, adopted in 1997 by the State Mining and Geology Board in accordance with the SHMA, constitutes guidelines for evaluating seismic hazards other than surface faulting, and for recommending mitigation measures as required by Public Resources Code Section 2695(a). Compliance with the requirements of SHMA would reduce the risk of injury and property damage resulting from potential earthquake-induced landslide hazards to a less than significant

[12] In the near-fault region of the Hayward fault (i.e., less than 2 km from the fault, which includes the project site), an additional seismic "fling" can be expected. This is accounted for in the latest version of the California Building Code.

level. The Proposed Project includes these project design features as required by Mitigation Measures III-B-1, III-B-2a, and III-B-2b in the LRDP EIR, as amended.

b) The Proposed Project would require excavation of approximately 32,000 cubic yards of soil to construct the Molecular Foundry building, the Central Utility Plant building, and otherwise to prepare the site for roads and walkways. This fill material would not leave the site but would be used as engineered fill to construct the new Lee Road extension, along the western perimeter of the Molecular Foundry buildings, and the widening of Lee Road, southwest of Building 62.

During excavation, topsoil would first be stripped and stockpiled for dressing finished slopes and for use in landscaped areas in all areas where excavations are to be made or fill deposited. Cut and fill slopes would not be steeper than two horizontal to one vertical, and edges of cut banks would be rounded to blend into the natural terrain. A site and project-specific erosion control plan would be included as part of the project design process and implemented as a condition for approval. This plan would include, as part of the Proposed Project, many or all of the following features: 1992 SEIR Mitigation Measures III-B-2a, III-B-2d, III-C-2; and development of a project/site-specific SWPPP. The SWPPP would include, as feasible, the covering of excavated materials, installation of silt traps, fencing, and use of filter fabric as measures to control erosion and sedimentation as required by the California general permit for stormwater associated with construction activities. Landscaping would be begun as soon as surface disturbances were finished for each relevant area. Potential soil erosion and topsoil impacts would be less than significant.

c, d) Impacts from potential landsliding (section VI-iv) and liquefaction ground failures including lateral spreading (Section VI-I through iii), soil subsidence, and soil collapse have been determined to be less than significant. The project design would incorporate foundation recommendations of the project geotechnical evaluation, in accordance with LRDP EIR, as amended, Mitigation Measure III-B-2b, so as to be constructed to applicable California Building Code and LBNL standards. In addition, the project would adhere to, where appropriate, guidelines of the CGS Special Publications 117; and incorporate LRDP EIR, as amended, Mitigation Measure III-B-1 to address any potential liquefaction hazards.

Geotechnical borings installed at the project site identified portions of on-site soils as being highly expansive, and provided recommendations to address these hazards. The report describes the site as being underlain by a combination of compacted material used on the site for landslide repair, landslide debris, and colluvial soil (Kleinfelder, January 29, 2002). The report specifically states: “Because some of the on-site soil has a high expansion potential, the geotechnical engineer should approve soil prior to its use as fill material. Fill should be moisture-conditioned and compacted to at least 90 percent relative compaction using ASTM D-1557 test procedure.” The report also recommends that the soil at sub-grade level be evaluated during site excavation to determine its expansion characteristics, and if found to be expansive, this soil should be excavated and replaced with low-expansion materials. These geotechnical recommendations have been incorporated into the Proposed Project Conceptual Design Report, along with LRDP EIR, as amended, Mitigation Measures III-B-1 and III-B-2(a and b). Any potential impacts due to expansive soils would be less than significant with the inclusion of these project features.

e) The Proposed Project would not include the installation of septic tanks or an alternative wastewater disposal system. Wastewater flows generated by the Proposed Project would be routed into the existing LBNL sewer system.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None. The Proposed Project would incorporate LRDP EIR, as amended, Mitigation Measures III-B-1, III-B-2a, III-B-2b, III-B-2c, and III-B-2d.

Molecular Foundry Project-Specific Mitigation Measures: None required.

Sources:

Association of Bay Area Governments (ABAG), *Earthquake Hazards Maps for Berkeley,* 2002.

California Building Standards Commission, *California Building Code,* Title 24, Part 2, 1995.

California Department of Conservation, Geological Survey (formerly the Division of Mines and Geology), Special Publication 78: *Earthquake Planning Scenario for a Magnitude 7.5 Earthquake on the Hayward Fault*, 1987.

California Department of Conservation, Geological Survey (formerly the Division of Mines and Geology), *Seismic Shaking Hazard Maps of California*, 1999.

International Conference of Building Officials, *Uniform Building Code*, Whittier, California, 1997.

Lawrence Berkeley National Laboratory, *Draft and Final Environmental Impact Report for the 1987* S*ite Development Plan*, (SCH# [19]85112610), August 1987.

Lawrence Berkeley National Laboratory, *Draft and Final Supplemental Environmental Impact Report (SEIR) for the Proposed Renewal of the Contract Between the United States Department of Energy and the Regents of the UC for the Operation and Management of the Lawrence Berkeley Laboratory*, SCH# [19]91093068, prepared by the University of California and Lawrence Berkeley Laboratory, with the assistance of Ira Fink and Associates, Inc., September 1992.

Lawrence Berkeley National Laboratory, *Supplemental Environmental Impact Report Addendum for the Proposed Renewal of the Contract Between the United States Department of Energy and the Regents of the UC for the Operation and Management of the Lawrence Berkeley Laboratory*, SCH# [19]91093068, September 1997.

Kleinfelder, Geotechnical Investigation, *Proposed Molecular Foundry Building, Lawrence Berkeley National Laboratory*, January 29, 2002.

Peterson, M.D., Bryant, W.A., Cramer, C.H., *Probabilistic Seismic Hazard Assessment for the State of California, California Geological Survey Open-File Report issued jointly with U.S. Geological Survey, CDMG 96-08 and USGS 96-706*, 1996.

Smith Group, *Concept Design Report: Molecular Foundry Facility, Lawrence Berkeley National Laboratory,* April 15, 2002.

U.S. Geological Society (USGS) Working Group on California Earthquake Probabilities (WG99), *Earthquake Probabilities in the San Francisco Bay Region: 2000-2030 – A Summary of Findings*, Open-File Report 99-517, 1999.

7. HAZARDS AND HAZARDOUS MATERIALS

LRDP EIR, as amended:

The potential exposure of LBNL projects to hazards and hazardous materials would be considered significant if it would exceed the following Standards of Significance, identified by the LRDP EIR, as amended:

- Create a potential public health hazard or involve the use, production, or disposal of materials that pose a hazard to people or to animal or plant populations;
- Interfere with emergency response plans or emergency evacuation plans;
- Result in unsafe conditions for employees or surrounding neighborhoods;
- Expose building occupants to work situations that exceed health standards or present an undue potential risk of health-related accidents; or
- Conflict with any federal, state, or local regulations or contractual DOE Order for the handling, packaging, storage, transport, or disposal of hazardous and radioactive materials and/or wastes.

The following relevant and potentially significant impacts, resulting from exposure to hazards and hazardous materials, have been anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which this analysis is tiered:

Impact IV-K-1:	Continued UC operation of LBNL, including proposed increases in laboratory and facility space, may result in impacts from the increased use of hazardous materials in research, facility construction, and facility maintenance activities.
Impact IV-K-2:	Continued UC operation of LBNL, including proposed increases in laboratory and facility space, is expected to result in the increased generation and discharge of hazardous wastes, including offsite disposal of hazardous, radioactive, and medical wastes, from research, facility construction, and facility maintenance activities.
Impact IV-K-3:	Continued UC operation of LBNL, including proposed increases in laboratory and facility space, will result in the increased transportation of hazardous materials and wastes.

Impact IV-K-5:	Continued UC operation of LBNL, including proposed increases in laboratory and facility space, will result in increased numbers of employees and thus increase the potential for exposures to hazardous or radioactive materials.
Impact IV-K-6:	Continued UC operation of LBNL, including proposed increases in laboratory and facility space, will result in a need to continue emergency preparedness and response programs to minimize impacts which may result from actual or potential release of hazardous materials in the workplace or the environment.
Cumulative Impacts:	No significant cumulative impacts are expected.

As a result of limited exposure to hazards and hazardous materials, the following mitigation measures, adopted as part of the LRDP EIR, as amended, are already required for the Proposed Project, and are therefore incorporated as part of the Proposed Project's description:

Mitigation Measure IV-K-1:	LBNL will prepare an annual self-assessment summary report. The report will summarize environment, health, and safety program activities, and identify any areas where LBNL is not in compliance with laws and regulations governing hazardous materials, hazardous waste, hazardous materials transportation, regulated building components, worker safety, emergency response, and remediation activities.
Mitigation Measure IV-K-2a:	Prior to shipping any hazardous materials to any hazardous waste treatment, storage or disposal facility, LBNL will confirm that the facility is licensed to receive the type of waste LBNL is proposing to ship to that facility.
Mitigation Measure IV-K-2b:	LBNL will continue its waste minimization programs and strive to identify new and innovative methods to minimize hazardous waste generated by LNBL activities.
Mitigation Measure IV-K-3:	LBNL will require hazardous waste haulers to provide evidence that they are appropriately licensed to transport the type of wastes being shipped from LBNL.
Mitigation Measure IV-K-5:	In addition to implementation of the numerous employee communication and training requirements included in regulatory programs, LBNL will undertake the following additional measures as ongoing reminders to workers of health and safety requirements: Posting, in areas where hazardous materials are handled, of phone numbers of LBNL offices, which can assist in proper handling procedures and emergency response information. Continuing to post "Emergency Response and Evacuation Plans" in all LBNL buildings.

Continuing to post all sinks in areas where hazardous materials are handled with signs reminding users that hazardous wastes cannot be poured down the drain.

Continuing to post dumpsters and central trash collection areas where hazardous materials are handled with signs reminding users that hazardous wastes cannot be disposed of as trash.

Mitigation Measure IV-K-6: LBNL will update its emergency preparedness and response program on an annual basis, and will provide copies of this program to local emergency response agencies and to members of the public upon request.

Setting:

The proposed project site is largely undeveloped with the exception of an approximately 18-car parking lot. There is no history of hazardous materials processing, storage, or disposal on the project site. This is consistent with the findings of LBNL's 10-year site-wide investigation of environmental activities at LBNL. Soil sampling and analysis of the proposed project site was carried out in January 2002. This investigation involved testing for volatile organic compounds, heavy metals, and radiological contaminants. The results of these analyses indicate that the proposed Molecular Foundry project site is free of chemicals of potential concern.

Discussion:

a,b) The Proposed Project is anticipated to be classified by the Department of Energy as a non-nuclear low-hazard facility. The Molecular Foundry facility operations would not include bulk storage—that is, large-quantity storage beyond what is reasonably needed for use and replenishment— of flammable or combustible liquids or gases, corrosive, caustic, or otherwise reactive or toxic chemical substances. The Proposed Project would comply with all LBNL hazardous materials policies and programs, in addition to all applicable Department of Energy Program and Project Management Practices.

In addition, environmental investigations at the proposed project site have not revealed the presence of contaminated soil or groundwater (Javandel, 2002).

LBNL has developed a stringent hazardous materials program, which includes personnel training and careful management, handling, and storage policies for hazardous materials. Compliance with existing LBNL policies would reduce potential hazardous materials impacts to a less than significant level. Given the types and quantities of chemicals expected, LBNL safety practices, and the Molecular Foundry building design criteria, Chemicals used at the site would not create a hazard to the public or the environment. Chemical wastes would be contained and ultimately disposed in accordance with all applicable and appropriate storage, transport, and disposal requirements. Satellite accumulation areas would be used to properly store hazardous waste until transferred to the RCRA-permitted Hazardous Waste Handling Facility. As provided in LRDP EIR, as amended, Mitigation Measure IV-K-1, the Proposed Project would track its safety and compliance performance in regard to hazardous materials; as provided in Mitigation Measure IV-K-2a, LBNL will confirm the appropriate licensing of any receiving facility for hazardous waste treatment, storage, or disposal; as provided in Mitigation Measure IV-K-2b, LBNL will continue its waste minimization programs to reduce the hazardous waste stream; and as provided in

Mitigation Measure IV-K-3, LBNL will confirm the appropriate licensing of any hazardous waste hauler serving the Proposed Project. Incorporation of these existing LRDP EIR mitigation measures into the project would further reduce a less than significant impact.

c) The project site is adjacent to the University of California at Berkeley campus, and the UC Lawrence Hall of Science is approximately 1,800 feet north of the project site. However, no existing or proposed kindergarten-through-12th grade schools are located within one-quarter mile of the Proposed Project. Potential impacts are anticipated to be less than significant.

d) Although portions of LBNL are classified as hazardous waste sites by Government Code Section 65962.5, the location of the Proposed Project site is not included on this list, and according to environmental sampling conducted at the project site, soil and groundwater beneath the proposed project site have not been impacted by activities in surrounding facilities. Therefore the project would not result in exposure to contaminated soil or groundwater.

e,f) The Proposed Project is not located within two miles of a public or private airstrip. Therefore, there are no potential impacts associated with safety hazards related to air traffic.

g) The Proposed Project is not anticipated to impair implementation or physically interfere with the emergency response or evacuation plan at LBNL.

h) LBNL maintains its own on-site fire department and emergency medical services, along with hazardous response personnel, which would minimize any risk associated with fires and hazardous material spills. These on-site services are located 1,400 feet from the proposed project site and are sufficiently staffed to accommodate this project. As part of the Proposed Project, fire-resistant ground cover would be planted as needed for erosion control. Plant materials would be selected based on their indigenous, water-saving, and low-maintenance characteristics. In addition, the Molecular Foundry facilities would be designed in conformance with requirements for Group "B" and "H-8" research laboratory occupancies as defined by the California Building Code (CBC), Type II Fire Resistive Construction, and with fire code safety requirements.

i) The Proposed Project would not exceed an applicable Standard of Significance established by the LRDP EIR, as amended.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None.

Molecular Foundry Project-Specific Mitigation Measures: None required.

Sources:

Javandel, Iraj, Lawrence Berkeley National Laboratory Earth Sciences Division, *Environmental Sampling at the Proposed Molecular Foundry Site Memorandum*, February 1, 2002.

State of California, Hazardous Waste and Substances Site List, 1998.

8. HYDROLOGY AND WATER QUALITY

LRDP EIR, as amended:

The impact of LBNL projects on hydrology and water quality would be considered significant, as established by the LRDP EIR, as amended, if projects are proposed that:

- Would be located in flood-prone areas;
- Would increase off-site flood hazard, erosion, or sedimentation;
- Would substantially degrade or deplete groundwater resources;
- Would interfere substantially with groundwater recharge; and
- Would substantially degrade surface or groundwater quality.

The following relevant impacts to hydrology and water quality have been anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which this analysis is tiered:

Impact III-C-1:	LBNL is not located in a flood-plain area. Continued University operation of LBNL, including continued implementation of the 1987 LRDP, is not expected to increase off-site flood hazard, erosion, or sedimentation. The project is not expected to deplete groundwater resources, interfere with groundwater recharge, or degrade surface or groundwater quality substantially.
Impact III-C-2:	Continued University operation of LBNL, including continued implementation of the 1987 LRDP, could produce increased surface and storm runoff.
Cumulative Impacts:	Implementation of all hydrology mitigation measures relevant to cumulative development, and compliance with all applicable laws, will result in less than significant impacts on hydrology. However, cumulative development in the City of Berkeley may adversely impact water quality, as well as potentially result in erosion and sedimentation of drainage facilities.

As a result of anticipated hydrological and water quality impacts, the following mitigation measures, adopted as part of the LRDP EIR, as amended, are already required for the Proposed Project, and are therefore incorporated as part of the Proposed Project's description:

Mitigation Measure III-B-2a:	Excavation and earth moving will be designed for stability, and accomplished during the dry season when feasible. Drainage will be arranged to minimize

	silting, erosion, and landsliding. Upon completion, the land will be restored, covering exposed earth with planting.
Mitigation Measure III-B-2d:	Revegetation of disturbed areas, including slope stabilization sites, using native shrubs, trees, and grasses, will be included as part of all new projects.
Mitigation Measure III-C-2:	Each individual project will continue to be designed and constructed with adequate storm drainage facilities to collect surface water from roofs, sidewalks, parking lots, and other surfaces and deliver it into existing channels which have adequate capacity to handle the flow.
Cumulative Impacts:	Potential adverse impacts to water quality can be reduced if LBNL adopts feasible mitigation measures to control surface water runoff, prevent erosion, and maintain adequate drainage facilities.

Discussion:

a) LBNL is situated in the ridges and drainage areas of Blackberry and Strawberry Canyons in the East Bay Hills within the Strawberry Creek watershed. Runoff from the project site currently drains to "No Name" Creek, which is a tributary of Strawberry Creek. The Proposed Project consists of two laboratory buildings, an access road, and associated parking, resulting in additional impervious surface area and consequently increasing surface water runoff from the project site. As part of the Proposed Project, surface water runoff would be re-routed into the LBNL storm drain system and conveyed to an existing detention basin near Centennial Drive in Strawberry Creek that subsequently discharges water further downstream in Strawberry Creek. Storm water generated within the LBNL facility is currently managed in conformance with LBNL's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Industrial Activity, as required by the Clean Water Act and the State Water Resources Control Board. Oversight and enforcement of this permit is provided by the San Francisco Bay Regional Water Quality Control Board and the City of Berkeley. Implementation of the permit requirements is detailed in LBNL's Storm Water Pollution Prevention Plan (SWPPP) and Storm Water Monitoring Plan (SWMP). Since the Proposed Project would be required to comply with LNBL's existing SWPPP and NPDES permit requirements, potential impacts associated with violation of water quality standards from future project site storm water run off is anticipated to be less than significant.

Construction-related grading and other activities would be required to comply with the Association of Bay Area Governments' Manual of Standards for Erosion and Sediment Control Measures, and with the State of California's Best Management Practices for Construction Activity Handbook. The site will require an NPDES stormwater permit for construction activity, which includes a project-specific SWPPP. A project-specific erosion control plan would be included and implemented during construction to reduce short-term water quality impacts associated with construction. BMPs addressed in this plan would include covering of excavated materials, installation of silt traps, fencing, use of filter fabric, stabilized construction entrances, etc., and oversight throughout construction by LBNL engineers and EH&S specialists. In addition, the plan would require disturbed areas to be landscaped and re-seeded at the earliest practical time during construction so that ground cover would be well established by the next rainy season, as required by Mitigation Measures III-B-2a and III-B-2d. Landscaping would begin as soon as surface disturbances are completed for each relevant area. Compliance with the SWPPP would ensure that potential impacts associated with project construction would be less than significant.

b) The Proposed Project is located in the Berkeley Hills, generally characterized by steep slopes underlain by bedrock with a shallow soil surface. Groundwater flow through bedrock is typically characterized by fracture flow that has slow recharge and low yield, while groundwater flow in the drainages is unconfined flow and fluctuates with seasonal precipitation. This area is not underlain by an easily accessible, high-yield, confined aquifer system that is capable of supplying many users. However, this area may represent a portion of the recharge area for the alluvial aquifer underlying the East Bay Plain to the west. The project would not use water supplied from groundwater sources at the site, but from the East Bay Municipal Utility District supply system. Therefore, the project would not need to pump groundwater and would not contribute to the depletion of an established groundwater resource.

It is anticipated that some dewatering may be necessary during project excavation and construction. Excavation for the site may intersect bedrock containing fracture flow, thereby causing surface seeps within the excavation. This is expected to be a temporary condition during construction that would be managed by temporary dewatering systems. If a groundwater seepage condition were to occur, and management of this condition were to become necessary, the project could require a subdrain system or other engineered solution to reduce groundwater levels around the building. This however, would not constitute significant alteration or depletion of a valuable or beneficial groundwater resource.

If dewatering is necessary during excavation and construction, the groundwater seepage would not be expected to contain any chemicals of special concern given the results of sampling conducted in January 2002. Such water, were it encountered, could therefore be discharged to storm drains.

c-f) The Proposed Project would not result in flooding, erosion, or siltation on or off-site. As discussed above, storm water drainage from the project site would be managed through LBNL's existing drainage management facilities. The course of neither No Name Creek nor Chicken Creek would be affected or altered, although the existing drainage rates and volumes may be reduced by the project as natural drainage from the site area is reduced. This reduction is considered less than significant to the overall hydrologic conditions of the creeks. Surface water drainage from the project site would be managed through the existing storm drain system, which discharges to a detention basin formed by a dam in Strawberry Creek. The increased volume of storm water handled by the drainage system as a result of the Proposed Project would not exceed system capacity or result in flooding. In addition, management of the system would conform with LBNL's existing SWPPP and NPDES permit, and potential adverse impacts to storm water runoff quality originating from the LBNL facility are therefore anticipated to be less than significant.

As discussed above, potential on-site erosion associated with construction operations would be minimized to a less than significant level by a site and project-specific erosion control plan that would be included as a required part of the NPDES construction activity permit.

g-j) The project site does not lie within the 100-year flood plain as determined by the Federal Emergency Management Agency (FEMA) flood hazard mapping, and would not include the construction of housing. There are no impounded water bodies upstream from the project site, and therefore flooding associated with failure of a dam or inundation by seiche are not anticipated to affect the project. As the proposed project site is located approximately 700 feet above mean sea level, potential inundation by tsunami is extremely remote.

k) The Proposed Project would not exceed the Standards of Significance established by the LRDP EIR, as amended.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None. The Proposed Project would incorporate LRDP EIR, as amended, Mitigation Measures III-B-2a, III-B-2d, and III-C-2. As a result, no significant hydrological impacts or impacts to water quality would result from the Proposed Project.

Molecular Foundry Project-Specific Mitigation Measures: None required.

Sources:

Association of Bay Area Governments (ABAG), *Manual of Standards for Erosion and Sediment Control Measures,* 1995.

Blair, Steve, Civil Engineer, Lawrence Berkeley National Laboratory, personal communication, April 23, 2002.

California Storm Water Quality Task Force, *Storm Water Best Management Practice Handbook , Construction Activity*, 1993.

FEMA Hazard Mapping by ESRI Website: http://www.esri.com/hazards, accessed April 2002.

Lawrence Berkeley National Laboratory, *Storm Water Pollution Prevention Plan*, June 1, 2002.

USGS 7.5 minute Series Quadrangle, Oakland East, photo revised 1980.

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9. LAND USE AND PLANNING

LRDP EIR, as amended:

The impact of LBNL projects on land use and planning policies would be considered significant if, as established by the LRDP EIR, as amended, UC's continued operation of development of LBNL would:

- Propose land uses that would conflict with existing or proposed land uses at the periphery of the campus or with local land use plans;
- Result in the conversion of open space into urban- or suburban-scale uses;
- Conflict with local general plans, zoning, or locally adopted environmental plans and goals; and
- Result in nuisance impacts as a result of incompatible land uses.

The following relevant impacts to land use and planning policies have been anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which this analysis is tiered:

Impact III-G-1:	There are no LBNL-proposed developments in the site development plan which would impact directly on the privately owned multiple-family or single-family housing along the LBNL western and northern boundaries.
Impact III-G-2:	Continued operation of LBNL by the University, including continued implementation of the 1987 LRDP, would result in the conversion of a small amount of open space into urban- or suburban-scale uses.
Impact III-G-3:	Continued operation of LBNL by the University, including continued implementation of the 1987 LRDP, would be consistent with the 1990 UC Berkeley Long Range Development Plan, and the General Plans of the City of Berkeley and the City of Oakland.
Cumulative Impacts:	No adverse cumulative impacts on land uses at and in the vicinity of LBNL are expected as a result of cumulative development.

As a result of anticipated impacts to land use and planning policies, the following mitigation measure, adopted as part of the LRDP EIR, as amended, is already required for the Proposed Project, and is therefore incorporated as part of the Proposed Project's description:

Mitigation Measure III-G-2:	Buildings proposed for development at LBNL will follow the design guidelines contained in the LBNL LRDP, as amended.

Discussion:

a) The project would occupy an approximately two and one-half acre site that is mostly undeveloped and located on a southwest-facing hillside between Building 72 and Building 66. It would complete a cluster of buildings near the junction of Lee Road and Lawrence Road just west of the Strawberry Entrance, within LBNL's Materials and Chemistry Research Area. Activities at the project site would be linked to activities in both Buildings 72 and 66. The Proposed Project would therefore not divide an established community.

b) The project site is part of 200 acres owned by the University of California, most of which are leased to the Department of Energy (DOE). This land and a larger surrounding area belonging to the University is within the boundaries of the Cities of Berkeley and Oakland. The proposed project site is on the eastern portion of the LBNL site and is within the city limits of Oakland. Because the land is controlled by a state entity (UC) and operated by a federal agency (DOE), it is exempt from local zoning and planning regulations. However, it is the policy of the University and LBNL to cooperate with local agencies in planning matters to the extent feasible. The City of Oakland's General Plan designates the area for institutional use and resource conservation, and present and proposed uses are consistent with intended uses according to the Oakland General Plan.

   The LBNL LRDP, developed in 1987, organized the LBNL site into seven functional planning areas to consolidate related functions, maximize efficiency, and establish well-planned roadways, pedestrian paths, and parking to minimize hazards to employees and the public. The project site would be located in the Materials and Chemistry Research Area, also referred to as the East Site Materials Sciences Facilities. This plan reserved several site locations for future construction, anticipating a future need for "advanced and specialized research facilities for

specific programmatic needs." Therefore, construction of the Molecular Foundry on this site would be consistent with the intended implementation of the LBNL LRDP.

The Long Range Development Plan (LRDP) for LBNL was approved by The Regents of the University of California in 1987. While this Plan and its accompanying EIR anticipate development out to an unspecified year ("20XX"), the Addendum to the Supplemental site-wide EIR adopted in 1997 analyzes LRDP-related buildout impacts through the Contract extension year of 2007.

The LRDP anticipates that growth on the main LBNL site could increase from approximately 1.59 million gross square feet (gsf) in 1987 to approximately 2.0 million gsf at buildout. There are currently about 233,500 gsf available for development under this projection. The proposed Molecular Foundry building and accompanying Central Utility Plant building total approximately 94,500 gsf, which would leave approximately 140,000 gsf remaining to the proposed buildout anticipated in the 1987 LRDP, and analyzed in the LRDP EIR, as amended.

The LRDP projects that total population growth at LBNL could increase from approximately 2,850 in 1987 to approximately 4,750 at buildout.[13] LBNL is currently about 400 people below the population projection anticipated by the LRDP. The proposed Molecular Foundry would add approximately 140 staff, students, and visitors to LBNL, approximately 260 persons below the population level proposed in the 1987 LRDP, and analyzed in the LRDP EIR, as amended.

The Proposed Project is generally consistent with land use designations set forth under the LRDP. The project would be constructed in a partially developed "open space" where a new building is anticipated in the LRDP. According to the 1987 LRDP, open space is provided to, according to the 1987 LRDP, "enhance the working and research environment, to maintain landscape compatibility, and to take advantage of the mild Bay Area climate and the views. Open areas are to be set aside for employee picnics, outdoor gatherings, and exercise." The Proposed Project would create a large and high-quality outdoor space in the expansive outdoor terrace that would serve as an outdoor meeting and recreational space for occupants of all outdoor buildings in the vicinity. It would include a mixture of paved and planted areas and would be oriented to provide optimal views.

A portion of the proposed Molecular Foundry building would also be in a "buffer zone" area as identified under the LRDP. Buffer zones do not exclude new buildings, but encourage new buildings to be designed to address, enhance and/or uphold special constraints and amenities on such sites. These constraints and amenities pertain to views, hydrology, stability, special vegetation, and building density. Each of these concerns is addressed by the project and demonstrates consistency with the values listed in the LRDP. A consistency analysis and statement was conducted for this project and is incorporated into this analysis.

The Proposed Project affirms and is consistent with the LRDP Goals and Objectives. The site is adjacent to both utility corridors and traffic/transit corridors. All support services have adequate capacity to serve the new building at this location. The Proposed Project is generally consistent with the LRDP's Design Guidelines. The Proposed Project would be larger than what was initially anticipated for the particular functional planning area—the Materials and Chemical Research Area—of LBNL; however, these specific area distribution estimates were

[13] Because the portion of the LBNL population identified as being located on the UC Berkeley Campus actually circulates regularly between Campus and LBNL main site facilities, aggregate rather than site-specific population figures are used for planning purposes to avoid population undercounting.

identified in the LRDP as being for "general estimating purposes only" and were not intended to restrict or promote particular development levels. Regental approval was based on the aggregate space and population projections presented in the 1987 LRDP and the Proposed Project is entirely within those parameters.

Although not yet completed or approved, an update to the 1987 LRDP is in progress and does not conflict with the project. In November 2000, a Notice of Preparation was issued for this forthcoming LRDP and new LRDP EIR. This LRDP would project growth and development at LBNL for approximately the next twenty years; growth in population and in developed space is expected to occur at the same rates as have been occurring at LBNL during the past 15 years—approximately 1.3 percent per year. The draft LRDP and LRDP EIR are expected to circulate for public review in 2003. The proposed Molecular Foundry project would be reflected and accounted for in this new LRDP and LRDP EIR.

c) No Habitat Conservation Plans or Natural Community Conservation Plans are in effect at the project site or in its immediate vicinity (see Section 4, *Biological Resources*, above). The project would therefore not conflict with such plans.

d) The Proposed Project would not exceed a Standard of Significance established by the programmatic LRDP EIR, as amended.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None. The Proposed Project would incorporate LRDP EIR, as amended, Mitigation Measure III-G-2. As a result, no significant impact to land use or land use policies would result from the Proposed Project.

Molecular Foundry Project-Specific Mitigation Measures: None required.

Sources:

City of Oakland General Plan, *Land Use and Transportation Element,* March 1998.

Lawrence Berkeley Laboratory, *Long Range Development Plan,* PUB-5184, August 1987.

Lawrence Berkeley Laboratory, *Draft Long Range Development Plan,* 2002.

Lawrence Berkeley Laboratory, *Site Development Plan, DEIR,* December 1986.

Project Description and Plans.

Site Visit, March 13, 2002.

10. MINERAL RESOURCES

LRDP EIR, as amended:

The impact of LBNL projects on mineral resources would be considered significant if, as established by the LRDP EIR, as amended, UC's continued operation and development of LBNL would result in development in areas:

- Which are located in a Mineral Resource Zone identified by the California Department of Mines and Geology.

LBNL is not located in a Mineral Resource Zone identified by the California Department of Mines and Geology. Therefore the Proposed Project would have no impact on a Mineral Resource Zone and no mitigation measures are required.

Discussion:

a,b) The project site is between existing LBNL buildings. Land in its immediate vicinity is either already developed or has been carefully evaluated for possible future development. No mineral resources have been identified on the site. The Proposed Project would not require quarrying, mining, dredging, or extraction of locally important mineral resources, nor would it deplete any nonrenewable natural resource. The project site is not located in a Mineral Resource Zone identified by the California Department of Mines and Geology.

c) The Proposed Project would not exceed the Standard of Significance established by the programmatic LRDP EIR, as amended.

Sources:

City of Oakland General Plan, *Land Use and Transportation Element,* March, 1998

Lawrence Berkeley Laboratory, *Long Range Development Plan,* PUB-5184, August 1987.

Lawrence Berkeley Laboratory, *Site Development Plan DEIR,* December 1986.

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11. NOISE

LRDP EIR, as amended:

The impacts of LBNL projects on noise levels would be considered significant if they would exceed the following Standards of Significance, established by the LRDP EIR, as amended:

- Generate noise that would conflict with local noise ordinances and standards, including State of California and local guidelines for long-term exposures, acceptable interior noise levels, and 24-hour average noise levels;
- Propose land uses that substantially increase noise levels in areas of sensitive receptors; and
- Propose land uses not compatible with the baseline noise levels.

The following relevant impacts to noise levels have been anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which this analysis is tiered:

Impact III-K-1:	Ambient noise levels from the University's continued operation of LBNL will generate noise levels which could conflict with applicable noise ordinances and standards.
Impact III-K-2:	Construction activities resulting from continued implementation of the 1987 LRDP could create significant adverse noise impacts on-site.
Impact III-K-3:	Since construction periods are of short term, approximately one to two years for site work and exterior construction, the overall off-site construction noise impacts are not expected to be significant.
Cumulative Impacts:	No cumulative noise impacts are anticipated from anticipated cumulative development at and in the vicinity of LBNL.

As a result of anticipated impacts to noise levels, the following mitigation measures, adopted as part of the LRDP EIR, as amended, are already required for the Proposed Project, and are therefore incorporated as part of the Proposed Project's description.

Mitigation Measure III-K-1:	Projected noise levels will be compared with ambient noise levels and the Berkeley Noise Ordinance limits, or other applicable regulations. Acoustical performance standards would be included in future construction documents. LBNL will continue to design, construct, and operate buildings and building equipment taking into account measures to reduce the potential for excessive noise transmission.
Mitigation Measure III-K-2:	Noise-generating construction equipment will be located as far as possible from existing buildings. If necessary, windows of laboratories or offices will be temporarily covered to reduce interior noise levels on-site.

Setting:

Noise is usually defined as an unwanted sound. Noise is typically measured in decibels, which is a logarithmic scale for expressing sound pressure-level energy. The A scale of noise measurement mathematically adjusts sound pressure levels that approximate the response of the human ear to different frequencies. Noise typically attenuates (diminishes) by about 6 dBA for every doubling of distance from the source. Thus, a noise measured at 90 dBA 50 feet from the source would be about 84 dBA at 100 feet, 78 dBA at 200 feet, 72 dBA at 400 feet, and so forth.

The construction and operation of the proposed building would create noise. This project involves construction within the LBNL site; there is no expansion into undeveloped areas of the property. Construction noise is a temporary phenomenon, but in this case the project work would extend for about a two-year period. Construction noise might be heard at offsite receptors, and levels could vary from hour to hour and day to day, depending on the equipment in use, the operations being performed, and the noise environment at the receptors. The new building would require heating

and cooling equipment, which creates a permanent, new noise source within the LBNL complex. The nearest sensitive noise receptors are nearby laboratories and existing homes in the Panoramic Hill neighborhood (about 1/3 mile south of the proposed new structure).

The major noise-producing phases of construction would occur with excavation, foundation and building erection, and exterior finishing. The foundation would be drilled piers poured in place and would not entail any pile driving.

Discussion:

a,d) Noise standards are addressed in local general plan policies and noise ordinances. A project could expose people to, or generate, noise levels in excess of these standards in two ways. First, a project could expose sensitive receptors to noise by introducing incompatible land uses (e.g., building a helipad next to a school) in an existing noise environment. Second, a project itself could create an increase in ambient noise levels that negatively affects existing nearby sensitive receptors (e.g., putting a petroleum refinery in a residential neighborhood).

For this project, some of the nearby residences are in the City of Oakland, and some in the City of Berkeley. These potential impacts are discussed below.

The proposed project site is in the eastern portion of LBNL and is within the city limits of Oakland. Because the land is controlled by a state entity (UC) and operated by a federal agency (DOE), it is exempt from local zoning and planning regulations. However, both the University and LBNL actively seek to cooperate with local agencies in planning matters to the extent feasible. Noise measurements were taken from nearby residences located in both the City of Berkeley and the City of Oakland.

The *Oakland Comprehensive Plan* contains guidelines for determining the compatibility of various land uses with different noise environments (City of Oakland, 1974). The Noise Element recognizes that some land uses are more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Present and proposed uses are consistent with the City of Oakland's General Plan designation of institutional use and resource conservation.

The City of Oakland also regulates short-term noise through city ordinances, which include a general provision against nuisance noise sources (Planning Code, Section17.120). The factors that are considered when determining whether the ordinance is violated include: a) the level, intensity, character, and duration of the noise; b) the level, intensity, and character of the background noise; and c) the time when, and the place and zoning district where, the noise occurred. Table VIII.9A presents the maximum allowable receiving noise standards for residential and civic land uses during the day. With the maximum construction noise expected to be associated with the project, noise levels at the property line of the nearest residences would not exceed the City standards.

The City of Berkeley's General Plan Noise Element also contains guidelines for determining the compatibility of various land uses with different noise environments (City of Berkeley). Generally, the noise level for residential, hotel, and motel uses is 60 dBA or less, while conditionally acceptable noise levels range from over 60 dBA to 75 dBA (may require insulation, etc.), and unacceptable noise levels are over 75 dBA. The City of Berkeley's Community Noise Ordinance sets limits for permissible noise levels during the day and night according to the zoning of the area. If ambient noise exceeds the standard, that ambient noise level

becomes the allowable noise levels. For R-1 and R-2 residential areas, the receiving noise level (not to be exceeded by more than thirty minutes in any hour) is 55 dBA from 7:00 a.m. to 10:00 p.m., and 45 dBA from 10:00 p.m. to 7:00 a.m. For R-3 uses and above, the receiving noise level (not to be exceeded by more than thirty minutes any hour) is 60 dBA from 7:00 a.m. to 10:00 p.m., and 55 dBA from 10:00 p.m. to 7:00 a.m.

TABLE VIII.9A
CITY OF OAKLAND
MAXIMUM ALLOWABLE RECEIVING NOISE STANDARDS FOR RESIDENTIAL AND CIVIC LAND USES[a], dBA

Cumulative Number of Minutes in Either the Daytime or Nighttime One Hour Period[b]	Daytime 7:00 a.m. to 10:00 p.m.	Nighttime 10:00 p.m. to 7:00 a.m.
20	60	45
10	65	50
5	70	55
1	75	60
0	80	65

a Legal residences, schools and childcare facilities, health care and nursing homes, public open space, or similarly sensitive land uses.
b The concept of "20 minutes in an hour" is equivalent to the $L_{33.3}$, which is a noise descriptor identifying the noise level exceeded one-third (33.3 percent) of the time. Likewise, "10 minutes in an hour," "5 minutes in an hour," and "1 minute in an hour" are equivalent to the $L_{16.7}$, $L_{8.3}$, and $L_{1.7}$, respectively. L_{max}, or maximum noise level, represents the standard defined in terms of "0 minutes in an hour."

SOURCE: Oakland Noise Ordinance No. 11895, 1996

Construction noise levels would fluctuate depending on the particular type, number, and duration of use of various types of construction equipment. The effect of construction noise would depend upon the volume (expressed in dBA) generated, the distance between noise sources and the nearest noise-sensitive uses, and the existing noise levels at those uses. The City of Oakland allows short-term (less than 10 days) construction noise received in residential areas between the hours of 7:00 a.m. and 7:00 p.m. on weekdays to reach levels of 80 dba (65 dBA on weekends between 9:00 a.m. and 8:00 p.m.), and long-term construction noise (more than 10 days) to reach levels of 65 dBA on weekdays and 55 dBA on weekends. The City of Berkeley also requires that construction be restricted to the hours of 7:00 a.m. to 7:00 p.m. on weekdays, and the hours of 9:00 a.m. to 8:00 p.m. on weekdays and holidays. However, the City of Berkeley requires that maximum noise levels should be controlled to not exceed 75 dBA at the nearest properties for mobile equipment and 60 dBA for stationary equipment.

To evaluate potential project impacts on the nearest noise-sensitive uses, simultaneous noise measurements were taken on the project site and at three residences in the Panoramic Hill neighborhood. Construction noise is typically generated by large, diesel-powered equipment. Since construction equipment was unavailable, a large commercial tree-limb grinder was used to generate noise at a suitable level. A noise meter was set up 50 feet from

the grinder while simultaneous readings were taken at three locations in nearby neighborhoods. A summary of this data is presented in Table VIII.9B.

TABLE VIII.9B
CONSTRUCTION NOISE MEASUREMENT DATA (decibels)

Noise Level dB (Average of several measurements)	Project Site	365 Panoramic Way	Project Site	299 Panoramic Way	Project Site	45 Canyon Road
Ambient	54.1	45.0	54.7	45.8	51.5	47.0
Engine Only	82.3	45.8	85.0	50.6	85.9	50.4
Grinding wood	91.6	50.5	N/A	N/A	N/A	N/A

Notes:

- Tests made during dry weather, wind approximately 3-5 mph from west, temp approximately 70 F.
- Sites on Panoramic Way are in City of Berkeley, the site on Canyon Road is in the City of Oakland.
- "N/A" indicates that accurate measurements could not be obtained at these locations because wood grinding noises were highly variable during short periods of time.

The noisiest phases of construction (exterior finishing) could create noise at 89 dBA L_{eq} (50 feet). During field measurements, at the nearest residences, about 1,500 feet away, the measured noise levels diminished to about 50 dBA. The large amount of trees and shrubbery in the area between the homes and the project site help create favorable attenuation, by absorbing rather than reflecting sound energy. These measured values are supported by calculated attenuation. Thus, predicted construction noise levels would not exceed the Oakland Noise Ordinance (see above text and Table VIII.9A). 60 dBA or less is also an acceptable noise level in residential zones according to the City of Berkeley Community Noise Ordinance. Therefore, the project would not significantly increase the daytime noise levels at nearby sensitive receptors. The Proposed Project would not perform construction activities at night.

In addition, the LRDP EIR, as amended, anticipates that LBNL operation, development, and construction activities under the planning period would be likely to create noise impacts that exceed or conflict with City of Oakland and City of Berkeley noise ordinances. Where exceedances are expected to occur from construction activities — site work and exterior construction — of temporary duration (approximately one to two years), the analysis found that such impacts would be expected to be less than significant (Impact III-K-3). Field testing confirmed that the nearest residences would not be subject to significant levels of noise during construction. The LRDP EIR, as amended, requires that construction be scheduled to avoid compounding construction activities. According to the LRDP EIR, construction contracts will limit construction to daytime activities.

The Proposed Project could generate noise from motor vehicle trips as well as from stationary sources such as Heating Ventilation Air Conditioning (HVAC) equipment. A change in noise level of less than three dBA is not discernible to the general population; an increase in average noise levels of three dBA is considered barely perceptible, while an increase of five dBA is considered readily perceptible to most people (Caltrans, 1998).

Traffic levels anticipated by the project would not result in perceptible project-related noise.

HVAC equipment involves fans and compressors that are designed by the manufacturer to operate quietly and unobtrusively. Since LBNL will install and operate the HVAC equipment in compliance with manufacturer's standards, the noise impact to nearby residents and adjacent land uses would be less than significant. (See Table VIII.9B for site-specific attenuation factors.)

Therefore, the Proposed Project would not expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance or LRDP EIR, as amended, during both the construction and operational phases of the project.

b) Much of the equipment at LBNL is very sensitive to groundborne noise or vibration. However, there are no existing sources of groundborne noise or groundborne vibration at or around the site. The project would not introduce any new sources of groundborne noise or vibration.

c) As discussed above, an increase of traffic-related noise of 3 dBA or more might be perceptible to nearby residents. Since the project-related traffic increases along all roadway segments would be less than double, there would be no permanent perceptible increase in ambient noise levels above those existing without the project. HVAC system noise would not be measurable off-site.

e, f) The project site is located approximately nine miles north of the Metropolitan Oakland International Airport (MOIA). The project site is not located within the Noise Impact Zone (65-dBA contour) for MOIA, adopted by the Airport Land Use Commission of Alameda County. The FAA considers residential land uses within noise environments of DNL 65 dBA or greater to be incompatible, if not acoustically treated. 65 dBA has also been established by California state law as the maximum acceptable noise level for residential land uses. The project site is not located within two miles of a private airstrip.

g) The Proposed Project would not exceed the Standards of Significance established by the programmatic LRDP EIR, as amended.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None. No significant impacts to noise levels are anticipated from the Proposed Project. However, the Proposed Project would incorporate LRDP EIR, as amended, Mitigation Measures III-K-1 and III-K-2.

Molecular Foundry Project-Specific Mitigation Measures: None required.

Sources:

Airport Land Use Commission of Alameda County, *Alameda County Airport Land Use Policy Plan*, July 16, 1986.

City of Oakland, *Oakland Comprehensive Plan* Noise Element, September 1974.

City of Oakland, *Oakland General Plan Land Use and Transportation Element, Draft Environmental Impact Report*, October 1997.

Governor's Office of Planning and Research, CEQA: California Environmental Quality Act Statutes and Guidelines, 1994.

U.S. Environmental Protection Agency, Noise from Construction Equipment and Building Operations, Building Equipment, and Home Appliances, December 1971.

U.S. Department of Transportation, Urban Mass Transportation Administration, Guidance Manual for Transportation, Noise and Vibration Impact Assessment, July 1995.

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12. POPULATION AND HOUSING

LRDP EIR, as amended:

The impact of LBNL projects on population and housing would be considered significant if they would exceed the following Standards of Significance, established by the LRDP EIR, as amended:

- Induce substantial growth or concentration of population;
- Displace a large number of people;
- Conflict with the housing and population projections and policies set forth in the General Plan.

The following relevant impacts to population and housing have been anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which this analysis is tiered:

Impact III-H-1:	Population growth associated with continuation of existing LBNL activities, including continued implementation of the 1987 LRDP, is not expected to have a significant adverse impact.
Impact III-H-2:	Population growth associated with continuation of existing activities, including renewal of the contract term, could create an impact on the availability of both owned and rented housing.
Cumulative Impacts:	No significant cumulative impacts upon employment or housing are projected as a result of cumulative development at and in the vicinity of LBNL.

Because no significant impacts were identified in the LRDP EIR, as amended, no mitigation measures were identified.

Discussion:

a through c) The Proposed Project would occupy a mostly undeveloped site, partially occupied by a paved surface parking lot. The project would therefore not displace existing housing or residents. The project would extend the existing roadway network to the project site, and northward to the Building 31 parking lot. However, the new roadway segment would directly serve the project site, which does not include residential uses.

Growth at the LBNL site is controlled by the 1987 LRDP. The LRDP anticipates that total population growth at LBNL could increase from approximately 2,850 in 1987 to approximately 4,750 at buildout. LBNL is currently approximately 400 people below its population projection. The proposed Molecular Foundry would be occupied by approximately 137 staff, students, and visitors to LBNL. This would result in a remaining balance of approximately 260 persons below the 4,750 growth-projection that is identified in the 1987 LRDP, and analyzed in the LRDP EIR, as amended. Of these 137 staff positions, 6 would be directors who currently work at LBNL and would not be replaced; approximately 36 would be graduate students from the UC Berkeley campus who would not have driving access to LBNL; and approximately 73 would be filled from scientific, technical, and administrative professionals new to the LBNL site. An additional 22 professional positions would be filled by staff already working elsewhere at LBNL and who would create vacancies that would most likely be filled within one year of their leaving. For that reason, all 137 positions are considered in the analysis for impacts.

It is assumed that many of the new employees would already live in the Bay Area. Visitors would be temporary and would therefore be visiting and/or already employed elsewhere in the Bay Area. The Proposed Project would therefore not directly or indirectly induce substantial growth in the area.

d) The Proposed Project would not exceed the Standards of Significance established by the programmatic LRDP EIR, as amended.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None. No significant impacts from increases in the number of LBNL employees would result from the Proposed Project.

Molecular Foundry Project-Specific Mitigation Measures: None required.

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13. PUBLIC SERVICES

LRDP EIR, as amended:

The impact of LBNL projects on public services would be considered significant if it would exceed the following Standards of Significance, established by the LRDP EIR, as amended:

- Require additional police and/or sheriff staff and equipment to maintain acceptable service ratios;
- Require additional fire protection staff or equipment to maintain an acceptable level of service (i.e., response time, equipment);
- Require expansion or realignment of the existing school system; and
- Affect or require the designation of substantial additional parkland to remain in conformance with locally acceptable or adopted park standards.

The following impacts to public services have been anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which this analysis is tiered:

Impact III-L-1:	The construction of additional facilities and any increased population would not cause increased impacts on local police and fire protection services.
Impact III-L-2:	The construction of additional facilities and any increase in population according to the 1987 LRDP would not cause significant impacts on local school systems.
Impact III-L-3:	Development proposed under the 1987 LBNL LRDP would increase demand for recreational services.
Cumulative Impacts:	No significant cumulative impacts upon the provision of public services is anticipated as a result of cumulative development at or in the vicinity of LBNL.

No mitigation measures were identified by the programmatic LRDP EIR, as amended. All impacts were found to be less than significant.

Discussion:

a) Fire and Police Protection. LBNL maintains its on-site fire protection services through contract with Alameda County and its own security force. These units are staffed appropriately for LBNL's needs for fire suppression and security protection. The current level of staffing is adequate to support fire and police protection services for the Proposed Project. Currently, three fire trucks and an ambulance are available on-site at all times. The LBNL security unit is part of the UC Police Services and includes sworn officers and contract protective service officers. Contracted personnel staff the LBNL entry gate kiosks. The construction phase of the project would not significantly affect response times to the project site and its vicinity as a result of any potential temporary construction-related roadway lane closures and detours. The Proposed Project is within an area already served by adequate fire and police protection services and would not result in the need for additional or expanded security or fire protection facilities. The project would be supported by a collaborative, multidisciplinary team that would include engineers and project managers, as well as industrial hygiene, environmental protection, design and construction safety, ergonomics, fire protection, and radiation protection professionals from LBNL's EH&S Division. Construction activities will be overseen so as to comply with applicable safety requirements of LBNL, DOE, CAL/OSHA, and federal OSHA. All appropriate fire, emergency medical, and police services would be consulted and apprised of every appropriate aspect of project design and construction.

Schools, Parks and other Public Facilities. The Proposed Project would contain primarily office, teaching, and laboratory spaces within the Molecular Foundry building. The uses proposed for this building would not generate the need for additional school, park, or other public facilities.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None. No significant impacts would result from the Proposed Project.

Molecular Foundry Project-Specific Mitigation Measures: None required.

Sources:

Lawrence Berkeley Laboratory, *Draft and Final Supplemental Environmental Impact Report (SEIR) for the Proposed Renewal of the Contract Between the United States Department of Energy and the Regents of the UC for the Operation and Management of the Lawrence Berkeley Laboratory*, prepared by the University of California and Lawrence Berkeley Laboratory, with the assistance of Ira Fink and Associates, Inc., September 1992.

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14. RECREATION

LRDP EIR, as amended:

The LRDP EIR, as amended, does not specifically analyze the impact of anticipated development on existing neighborhood parks and regional parks or other recreational facilities.

Discussion:

a,b) The proposed Molecular Foundry complex would be located near LBNL open space, as well as the 205-acre Claremont Canyon, the 2,077-acre Tilden Park, recreational areas of the UC Berkeley in the Strawberry Canyon area, and the UC Berkeley campus itself. Claremont Canyon has no developed facilities and Tilden Park includes a lake, nature area, Botanical Garden and a variety of activities. The UC Berkeley campus and many of the adjoining University lands are open for walkers and hikers.

The proposed Molecular Foundry complex would be staffed by an estimated 140 persons, of which an estimated 94 would be new staff persons. The new staff would not, by virtue of their small numbers, cause an impact to large-scale open spaces or to the UC Berkeley campus. Smaller local parks are located north of LBNL within the City of Berkeley. In relationship to the proposed project site, these parks are outside of walking range, are located in residential areas where parking would be limited, and would not likely be used by LBNL staff unless they were already residents in the area.

The Molecular Foundry would have a negligible or no impact on local or regional recreational facilities near LBNL.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None. No significant impacts would result from the Proposed Project.

Molecular Foundry Project-Specific Mitigation Measures: None required.

15. TRANSPORTATION/TRAFFIC

LRDP EIR, as amended:

The impact of LBNL projects on transportation and traffic would be considered significant if it would exceed the following Standards of Significance, established by the LRDP EIR, as amended:

- Cause intersection levels of service (LOS) to fall below LOS D or cause a significant incremental decline in service at an intersection currently operating at LOS E or below;
- Have inadequate parking and internal circulation to accommodate projected traffic so that off-campus areas are adversely affected; and,
- Fail to include provisions for pedestrian and bicycle circulation, and bicycle and motorcycle parking and security.

The following relevant impacts to transportation and traffic have been anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which this analysis is tiered:

Impact III-I-1:	Incremental increases in traffic are expected due to projected increases in the number of employees and visitors at LBNL.
Impact III-I-2:	The ratio of parking spaces to LBNL employees will decrease during the LRDP implementation period.
Cumulative Impacts:	Cumulative population growth and facility development in the vicinity of LBNL has resulted in a deterioration of levels of service at intersections on feeder routes into the UC Berkeley campus and LBNL area.

As a result of anticipated impacts to transportation and traffic, the following mitigation measures, adopted as part of the LRDP EIR, as amended, are already required for the Proposed Project, and are therefore incorporated as part of the Proposed Project's description:

Mitigation Measure III-I-Ia: Discourage single-occupant-vehicle use and encourage the use of other transportation options. LBNL will continue to implement its Transportation System Management (TSM) Program. The specific features of this program include:

Establishing transportation modal-split goals for LBNL which will result in a reduction in the number and percentage of single-occupant automobiles being driven to and from LBNL;

Assigning a transportation planner to coordinate the design and implementation of TSM programs;

Promoting carpools by creating a carpool matching program;

Providing preferential carpool parking;

Developing a vanpooling program through funding support of Berkeley TRIPS;

Permitting staggered (flex-time) work hours;

Developing an annual monitoring program to evaluate the programs in relation to established goals and identify new elements which should be added to the program;

Promoting the TSM programs by giving orientation briefings to new employees, providing information aids to be distributed to LBNL employees, organizing an information center, and selling transit tickets on-site at LNBL;

Reviewing LBNL shuttle service and transit interface facilities; and

Reviewing bicycle routes and storage facilities for improvements.

Mitigation Measure III-I-1b: LBNL will conduct bi-annual peak hour traffic counts in and around LBNL. In particular, the bi-annual count will include the Gayley Road corridor between Hearst Avenue and Bancroft/Piedmont.

Mitigation Measure III-I-1c: If and at such time as the level of service at intersections along the Gayley Road corridor reaches "D," a review of necessary improvements will be conducted with UC Berkeley;

Mitigation Measure III-I-1d: LBNL will pay for its fair share of allowable and necessary signalization improvements along the Gayley Road corridor proportional to LBNL's share of increases in traffic.

Mitigation Measure III-I-1e: Details of the Gayley Road corridor improvements, including environmental assessment of the improvements, will be reviewed at the time the thresholds are reached.

Mitigation Measure III-I-2: LBNL will continue to implement and monitor the implementation of its Transportation System Management Program.

Cumulative Impacts: The cumulative measures undertaken by the City of Berkeley, UC Berkeley, and LBNL should result in a net improvement in the traffic and parking conditions in the immediate vicinity of LBNL and UC Berkeley.

Discussion:

a, b) Existing traffic level of service (LOS) conditions were assessed at the following 5 key (gateway) intersections for weekday a.m. and p.m. peak traffic hours:

- University Avenue and Shattuck Avenue (southbound) – signalized
- Hearst Avenue and La Loma Avenue / Gayley Road – signalized
- Gayley Road and Stadium Rim Way – all-way stop-sign control
- Piedmont Avenue and Dwight Way – signalized
- Grizzly Peak Road and Centennial Drive – all-way stop-sign control

The LOS concept is a qualitative characterization of traffic conditions associated with varying levels of traffic, based on delay and congestion. Descriptions of conditions range from LOS A (free-flow condition) to LOS F (jammed condition). LOS C or better are generally considered to be satisfactory service levels, while LOS D is minimally acceptable, LOS E is undesirable, and LOS F conditions are unacceptable.

Traffic counts were conducted at each of the study intersections when UC Berkeley was in session.[14] All of the 5 study intersections currently operate at LOS B during a.m. and p.m. peak hours, except the all-way stop-sign-controlled intersection of Gayley Road / Stadium Rim Way, which operates at LOS F during both peak hours. Traffic conditions in 2020 (within the project) were forecast on the basis of information developed for the 2001 Berkeley General Plan. The majority of study intersections are projected to continue operating at LOS D or better in 2020. The p.m. peak-hour level of service at the intersection of University Avenue / Sixth Street is projected to degrade from LOS D to F.

Net new trip generation was estimated based on proposed maximum staff levels and expected work hours (by category of worker), as well as commute travel mode splits, trip distribution pattern, and data pertaining to non-commute trips gathered for the LBNL LRDP EIR analysis. The LBNL shuttle system provides frequent service between downtown Berkeley and the LBNL site, as well as service within the LBNL site between Lab buildings, with a shuttle bus stop in front of the project site.[15] Given the nature of the work that would be conducted in the proposed building, the scientists (staff and visiting) would work irregular hours. For example, on some days, a scientist might work hours analogous to 8:00 a.m. to 5:00 p.m. work days typical of office workers, but on other days that same scientist might work 10:00 a.m. to 7:00 p.m., or might work on a Saturday instead of one of the weekdays. The irregularity of work hours would result in varied peak-hour trips from day to day. The estimate of project-generated new vehicle trips is based on conservative assumptions so as to not understate potential impacts associated with the Proposed Project.

Two scenarios were prepared – one based on observed temporal distribution of peak-hour commute trips exhibited by similar categories of workers at Buildings 62, 66, 72, 74, and 84 in proximity to the project site, and the other based on a reasonably higher (conservative) temporal distribution of those trips. The latter scenario yields about 50 percent higher peak-hour vehicle trips than the first scenario. The Proposed Project would generate up to about

[14] Peak-period traffic counts were conducted at the study intersections in November 2000, February 2002, and March 2002 by Wilbur Smith Associates for the LBNL LRDP EIR analysis.

[15] The Laboratory operates a free shuttle bus service within the LBNL campus, and between the campus and downtown Berkeley (connecting with the Berkeley BART Station and AC Transit bus lines). Another off-site shuttle provides express service to and from the Rockridge BART Station at select commute hours. The principal off-site shuttle operates from 6:30 a.m. to 6:50 p.m., running every ten minutes up until 5:50 p.m., when buses run at 20-minute intervals.

30 to 35 net new vehicle trips during the morning and evening peak hours (see Table VIII.15a). About half of those trips would pass through the main (Blackberry Canyon) gate; the remaining trips would use the Strawberry Canyon gate, split between Grizzly Peak Road / Centennial Drive and Stadium Rim Way / Centennial Drive.

Under both the "Existing plus Project" and "Cumulative plus Project" scenarios, levels of service at all study intersections would not change with the addition of traffic from the Proposed Project; i.e., service levels would remain at LOS B during the two analysis periods, except at the Gayley/Stadium Rim intersections, where delays within LOS F would occur; the increase in average vehicle delay caused by the addition of project traffic during both peak hours would be no more than about two seconds during both peak hours.

Under cumulative (2020) conditions, traffic volumes would increase on area roadways and at study intersections, due to development foreseen by LBNL under its revised LRDP, and by the cities of Berkeley and Oakland, and by UC Berkeley. Recent (2001) estimates of increases in roadway and intersection traffic volumes were presented in the University of California at Berkeley's *Northeast Quadrant Science and Safety (NEQSS) Projects* EIR and the City of Berkeley's *General Plan Update EIR*. The study intersections would continue to operate at acceptable levels of service (LOS D or better) during the a.m. and p.m. peak hours, except at the Gayley Road / Stadium Rim Way intersection, where delays within LOS F would increase. As described above, new traffic generated by the Proposed Project would be modest and would be dispersed among roads accessing the entrance gates, and therefore levels of service at the key (gateway) intersections would not change with the addition of project traffic. The contribution of project-generated traffic to LOS F conditions at Gayley/Stadium Way would be less than significant (i.e., the increase in average vehicle delay caused by the addition of project traffic at the latter intersection would be less than two seconds during both peak hours).

The Proposed Project therefore would have a less than significant impact on traffic conditions on the area roadway system.

c) There would be no change to air traffic patterns associated with the project.

d) The project would neither alter the physical configuration of the existing roadway network serving the area, nor introduce unsafe design features or incompatible uses into the area. The physical and traffic characteristics of area roadways (e.g., traffic signal and stop-sign control, pedestrian crosswalks and crossing signals, and bicycle lanes) would safely accommodate project-generated traffic (both vehicular and non-motorized). The project's effect on safety would be less than significant.

e) The proposed system of access and egress for the parking area serving the proposed building would adequately accommodate the mix of users. Access to the building for emergency vehicles would be provided from

Lawrence Road and from the building's parking area. There would be less than significant impacts associated with project general and emergency access.

f) LBNL offers parking privileges to full-time employees and visitors, but not to graduate students, who are otherwise present on the UC Berkeley campus and have access to LBNL's free shuttle system. Given that the 6 directors already work at the LBNL site and would not be replaced, the number of Molecular Foundry staff who could potentially require parking (including staff who would replace the estimated 24 non-Director employees already on site) would approach 94 people. However, this number would be further reduced by applying LBNL's

current rate of vehicle-mode commuters (drive alone plus carpool) to that number (the remainder would presumably take public transportation or would find alternate modes of transportation). The adjusted estimated parking demand for the Proposed Project, then, would be about 63 spaces.

The Proposed Project would displace 18 existing spaces in a surface lot, and provide 16 new spaces on the upper level of the subsurface utility plant / parking facility. The estimated demand for parking spaces that would be generated by the Proposed Project would be accommodated through a combination of the above-cited on-site parking supply and the other LBNL parking spaces connected to the project building by the LBNL shuttle bus. Approximately 40- to -55 additional spaces would be required to serve the project and to maintain LBNL's desired parking ratio of 1.7 full-time equivalents (employees) per parking space. Those additional spaces would come from the general LBNL pool of about 2,400 parking spaces. Because there would be no spillover of parking demand from the project site into adjacent neighborhoods, any parking impact would be internal to the LBNL site, and therefore, the Proposed Project would have a less than significant impact on parking conditions after project occupancy.

g) The LBNL free shuttle bus system provides frequent service between downtown Berkeley (which is well-served by public transportation, including services provided by BART and AC Transit) and the LBNL site, as well as service within the LBNL site between Lab buildings, with a shuttle bus stop in front of the project site. Another off-site shuttle provides express service to and from the Rockridge BART Station at select commute hours. The principal off-site shuttle operates from 6:30 a.m. to 6:50 p.m., running every ten minutes up until 5:50 p.m., when buses run at 20-minute intervals.

   The project would not conflict with adopted policies, plans, or programs supporting alternative transportation.

h) The Proposed Project would not exceed the Standards of Significance established by the programmatic LRDP EIR, as amended.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, Mitigation Measures: None. No significant traffic- or circulation-related impacts would result fro the Proposed Project.

Molecular foundry Project-Specific Mitigation Measures: None required.

TABLE VIII.15a
NET NEW PEAK-HOUR VEHICLE TRIP GENERATION ESTIMATE

AM Peak Hour

Category	Number of People	Work Hours	Drive Alone (59.4%)	Rideshare (8.8%)	Public Transit (8.3%)	Walk / Bike / Shuttle (21.2%)	Motorcycle (2.3%)	Net New Person Trips	Net New Vehicle Trips
- Directors (6 total)	6	n/a (*not new*)	0	0	0	0	0	0	0
- Scientific Staff (25 total - "irregular") /a/	25	arr. 7:30-9:00A /b/	7	1	1	2	0	11	7
- Tech. Staff (18 total – regular)	18	arr. 7:00-8:30A /b/	5	1	1	2	0	8	5
- Admin. Staff (10 total – regular)	10	arr. 7:00-8:30A /b/	3	0	0	1	0	5	3
- Visiting Scientists (25-42 total - "irregular") /a/	42	arr. 7:00-9:00A /b/	11	2	2	4	0	19	12
- Students/Post Docs (36 total - "irregular") /a/	36	irregular hours; assume off-peak	0	0	0	0	0	0	0
TOTAL	**137**	**Inbound Trips**	**25**	**4**	**4**	**9**	**1**	**43**	**28**
							TOTAL VEHICLE TRIPS /c/ =		**32**

PM Peak Hour

Category (*see above*)	Number of People	Work Hours	Drive Alone (59.4%	Rideshare (8.8%)	Public Transit (8.3%)	Walk / Bike / Shuttle (21.2%)	Motorcycle (2.3%)	Net New Person Trips	Net New Vehicle Trips
- Directors	6	n/a (*not new*)	0	0	0	0	0	0	0
- Scientific Staff	25	dep. 4:30-8:00P /b/	7	1	1	2	0	11	7
- Tech. Staff	18	dep. 4:00-5:30P /b/	5	1	1	2	0	8	5
- Admin. Staff	10	dep. 4:00-5:30P /b/	3	0	0	1	0	5	3
- Visiting Scientists	42	dep. 4:30-8:00P /b/	11	2	2	4	0	19	12
- Students/Post Docs	36	assume off-peak	0	0	0	0	0	0	0
TOTAL	**137**	**Outbound Trips**	**25**	**4**	**4**	**9**	**1**	**43**	**28**
							TOTAL VEHICLE TRIPS /c/ =		**33**

/a/ "Irregular" - workers who may, e.g., work 7am-7pm one day, then work 10a-7p the next day, vs. working regular hours every day.

/b/ Assumes arrivals and departures would be conservatively higher than the arrival patterns observed during surveys of parking lots for Buildings 66/62, 72, and 74/84; i.e., 45% of workers (or 50% more than survey indicated) would arrive and depart during the peak hour within the peak two-hour commute periods (7-9am and 4-6pm).

/c/ LBNL LRDP trip generation rates indicate that the a.m. peak-hour outbound rate is about 13% of the total rate, and the p.m. peak-hour inbound rate is about 15% of the total rate. SOURCES: Environmental Science Associates, and travel mode split from the LBNL Employee Transportation Survey, December 1998

16. UTILITIES AND SERVICE SYSTEMS

LRDP EIR, as amended:

The impact of LBNL projects on utilities and service systems would be considered significant if it would exceed the following Standards of Significance, established by the LRDP EIR, as amended:

- **Water**: Propose a significant increase in the consumption of potable water, or require a substantial expansion of water supply treatment or distribution facilities;
- **Wastewater Treatment**: Require substantial expansion of wastewater treatment and distribution capacity; and
- **Solid Waste**: Utilize a landfill which does not have sufficient available capacity to accommodate the Proposed Project.

The following relevant impacts to utilities and service systems have been anticipated and analyzed pursuant to CEQA, as part of the programmatic LRDP EIR, as amended, from which this analysis is tiered:

Impact III-M-1:	Projected development according to the 1987 LRDP may create demands with regard to existing wastewater and sanitary sewer systems.
Impact III-M-2:	Development proposed under the 1987 LBNL LRDP would increase the demand for domestic water. This demand is well within the capacity of the existing ties to EBMUD and the LBNL water distribution system. This demand is not considered significant.
Impact III-M-3:	Development proposed under the 1987 LBNL LRDP would increase the usage of natural gas. The projected usage is within the capacity of the existing PG&E and LBNL systems, except for the main extensions required for new buildings. This increased usage is not considered significant.
Impact III-M-4:	The development of the LBNL East Canyon site as currently planned will require rerouting of the PG&E 120 KV service into LBNL.
Impact III-M-5:	Development proposed under the 1987 LBNL LRDP would increase the usage of electrical power. PG&E has the capacity to supply this power. This increased usage is not considered significant.
Cumulative Impacts:	Cumulative development at and in the vicinity of LBNL is not expected to result in adverse impacts to utilities and waste services.

Additional mitigation measures related to hazardous waste are discussed in Section VI.7, above.

As a result of anticipated impacts to utilities and service systems, the following mitigation measures, adopted as part of the LRDP EIR, as amended, are already required for the Proposed Project, and are therefore incorporated as part of the Proposed Project's description:

Mitigation Measure III-M-1: Prior to construction of any project which may add significant sewer load to the city sanitary sewer system, LBNL will investigate the potential impact of the project on the city system. LBNL will identify mitigation measures to accommodate the sewer load if the impact investigation indicates that the city system could not accommodate the additional sewage. LBNL will reimburse the City of Berkeley and/or EBMUD for its fair share of allowable and necessary sewer improvement capital costs which are needed to accommodate increased demand and mitigate sewer impacts resulting from implementation of the LBNL LRDP.

Discussion:

a–g) The project is located adjacent to an urban area and is already served by utilities and service systems. It is not anticipated that additional needs created by the project would be sufficient to necessitate construction of new or expanded systems.

The LBNL facility receives its water from the East Bay Municipal Utility District (EBMUD). The proposed project would be served by EBMUD's Shasta Pressure Zone (PZ), which provides water service to customers within an elevation range of 900 to 1,050 feet, and the Berkeley View PZ, which provides water service to customers within an elevation range of 1,050 to 1,250 feet. The LBNL site receives its water supply via a 12-inch meter in Campus Drive in the Shasta PZ and via a 6-inch meter in Summit Road from the Berkeley View PZ. In addition, Department of Energy (DOE) owns and maintains two 200,000-gallon storage tanks on site for emergency supply in the event of interruption of EBMUD's service and a third 200,000-gallon emergency tank is under construction in the East Canyon area upslope of the project site. The existing distribution system supplies water for all laboratory uses and has sufficient capacity to meet the flow rate and duration requirements for both daily use and fire protection. Although the project would be expected to increase use by over 1,200 gallons per day, it would not cause a significant impact as the two existing EBMUD PZs have combined storage capacity of 3.1 million gallons. Wastewater from LBNL is carried via a gravity flow system through two monitoring stations, one located at Hearst Avenue and the other at Centennial Drive in Strawberry Canyon. The project would be served by the Centennial Drive Station. It connects first to the University of California's sewer system, then to the City of Berkeley's public sewer system, and then to an EBMUD-operated intercepting sewer, which transports effluent to a regional wastewater treatment plant located southwest of the interchange of I-80 and I-580 in Oakland. The facility is owned by EBMUD and serves six East Bay cities and the Stege Sanitary District. Increase at this large capacity plant would be minimal.

All LBNL sanitary sewage runs through the City of Berkeley's basin No. 17. The City Department of Public Works has confirmed that there is considerable remaining average and peak wet weather capacity in this basin. The proposed project would most likely be directed into subbasin #17-003; this subbasin has more than adequate average and peak wet weather capacity to accommodate the estimated 1,200 gpd sanitary sewage flows from the proposed project.

The main concern with sewer flow in this subbasin and region-wide in the EBMUD system is the infiltration and inflow of stormwater into the sanitary sewer system due to the poor condition of aging sewer pipes (known as "infiltration / inflow" or "I/I"). LBNL has aggressively acted to address infiltration / inflow problems in its own system and has made dramatic improvements in recent years. In addition, an aggressive plumbing maintenance and upgrade effort has been undertaken during the past 15 years by LBNL, along with installation of water-saving devices and systems, to substantially lower average sewer flows as well. The savings realized by these on-going efforts has reduced both peak wet weather as well as average sewer flows by well over half. Moreover, LBNL's peak wet weather infiltration / inflow rate is less than half that of the City of Berkeley and approximately only ten percent of that found in EBMUD's district on average. LBNL continues to seek ways in which to reduce both water consumption and sewage generation.

In 1984, LBNL's allocated sewer flow was approximately 200,000 gallons per day (gpd). Due to historic infiltration / inflow, that amount was much higher during peak wet weather events. In recent years, due to the aforementioned efforts, that average annual sewer flow has been reduced by approximately 100,000 gpd, and by even greater amounts during wet weather. The proposed Molecular Foundry is expected to generate less than 1,200 gpd of sewage. This incremental amount falls well below what was allocated to LBNL previous to its sewer upgrade projects. It is also consistent with the 1987 LRDP EIR, as amended, which anticipated, analyzed, and found less-than-significant impacts for buildout levels of sanitary sewage at much higher than current levels, even with inclusion of the proposed project. Moreover, because the sewer lines installed for the Molecular Foundry would be new, state-of-the-art, and virtually free of stormwater infiltration, the proposed project would add only incremental amounts in both dry and wet weather and would not contribute to the problem of I/I surplus flows during peak wet weather events.

Through the University of California, LBNL currently pays the City of Berkeley for assessed sewer services. In addition, the University has contributed to the City of Berkeley's sewer upgrade program. This program is intended to increase wet weather flow capacity and decrease infiltration / inflow conditions.

Because of LBNL's hillside location, a storm-drainage system has been installed which discharges into the North Fork of Strawberry Creek to the north and Strawberry Creek to the south. Runoff from the project site would be discharged into a detention basin which incorporates Strawberry Creek. An existing 12-inch storm drain that crosses the site would be re-routed to the lower access road. There would be some incremental increase of flow into the detention basin and the creek due to an increase in impermeable surface area associated with the project. The existing system provides for runoff intensities expected in a 25-year maximum-intensity storm.

Non-hazardous solid waste generated at the project site would be collected by Richmond Sanitary Service and taken to the Richmond Landfill. Disposal of solid waste generated during construction would be the responsibility of the contractor. Although operations at the new building will create additional waste in proportion to the number of employees stationed there, its volume is not anticipated to be great enough to significantly affect existing facilities. LBNL has a recycling program, which it continues to expand and update.

The project would include an on-site 8,000-gsf utility plant that would house mechanical and electrical equipment to serve the main building. It would contain systems for heating, cooling, and purification of air and water to be used in the Foundry. In addition, it would hold a stand-alone diesel-engine generator to provide a source of emergency power. All normal operating electrical power would be supplied by Pacific Gas and

Electric Company through the Lab's existing infrastructure and the Grizzly Peak substation. Analysis of the environmental effects of construction of the proposed utility plant is considered throughout this document as part of the Proposed Project.

h) The Proposed Project would not exceed the Standards of Significance established by the programmatic LRDP EIR, as amended.

Summary of Impacts and Mitigation Measures:

Potentially significant impacts not mitigated by LRDP EIR, as amended, mitigation measures: None. The Proposed Project would incorporate LRDP EIR, as amended, Mitigation Measure III-M-1. As a result, no significant impact to utilities or service systems would result from the Proposed Project.

Molecular Foundry Project-Specific Mitigation Measures: None required.

Sources:

Lawrence Berkeley National Laboratory, *Long Range Development Plan*, PUB-5187, August 1987.

Lawrence Berkeley National Laboratory, *Site Development Plan DEIR*, December, 1986.

Smith Group, *Molecular Foundry Facility LBNL Concept Design Report*, April 2002.

Project Description and Plans.

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17. CUMULATIVE IMPACTS

PROJECTS IN VICINITY OF PROPOSED PROJECT

Planned, pending, and/or reasonably foreseeable projects in the area of the Proposed Project include:

- A foreseeable proposal to construct an approximately five-story, 60,000 gsf office building near LBNL's Blackberry Gate entrance ("50X Building"). This project would be a "decompression" building envisioned to provide relief for overcrowded office facilities elsewhere on-site; it would not result in an increase of LBNL's population nor increase in traffic impacts. Construction would be anticipated to take place between 2004 and 2006. Should this proposal move forward, an environmental analysis of and decision regarding this project is expected to occur in early 2003.

- A foreseeable proposal to design and implement a new Long Range Development Plan (LRDP) for LBNL; this LRDP would guide LBNL's development for approximately 20 years. The proposed new LRDP is anticipated to identify new population and space growth projections for LBNL, although growth would be projected to occur at approximately the same rate as has been experienced at LBNL during its recent history (approximately 1.3 percent per year). The main differences between the current LRDP and the upcoming proposed new LRDP

would be realized during the later phases of the planning period, sometime after 2010. Should this proposal move forward, an environmental analysis of and decision regarding this project is expected to occur in late 2003.

- Development in the surrounding area includes growth and development within the City of Berkeley as envisioned in the 2001 Berkeley General Plan and EIR; within the northeastern portion of the UC Berkeley campus as described in the *Northeast Quadrant Science and Safety Projects and 1990 Long Range Development Plan*, January 2002 (NEQSS Project); and as expected to be projected for the overall UC Berkeley campus in the forthcoming UC Berkeley Long Range Development Plan and EIR. The 2001 City of Berkeley General Plan allows for steady growth and development, but, given a lack of substantial undeveloped space in the City, at a relatively even pace with an emphasis on in-fill development. Projections include a population increase of approximately 7,000 people (a roughly six percent increase), approximately 3,300 new household units (a roughly eight percent increase), and approximately 3,700 new jobs (a roughly five percent increase) by the year 2020. The NEQSS project would construct approximately 324,400 gsf of buildings (demolition of existing 100,000 gsf, construction of 430,000 gsf) 140 parking spaces and approximately 400 full-time equivalent (FTE) employees to the northeastern quadrant of the UC Berkeley campus after a construction period projected to last from approximately 2002 to 2005. The forthcoming UC Berkeley LRDP revision and EIR would likely project increases in population and built space by the year 2020.

  The UC Berkeley NEQSS project and the forthcoming LRDP revision are scheduled to gradually begin to take effect after 2005, as UC Berkeley has agreed with the City of Berkeley that it will not begin to substantially increase its population prior to that time, and the NEQSS project will not be completed and operational until after 2005.

CUMULATIVE IMPACT AREAS

The Proposed Project would not reasonably be expected to result in significant cumulative impacts with the following environmental resource areas: Agricultural resources, Mineral resources, and Recreation.

Aesthetics/Visual Quality

Implementation of the Proposed Project would result in a visual change to the LBNL and surrounding hillside environment. The proposed 50X building would have a similar project-specific result. However, both projects would be visible from limited and mutually exclusive vantage points, and neither would take place in an area that is not currently surrounded by development. None of the other projects identified would noticeably add to a visual quality cumulative impact with the Proposed Project. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which addressed cumulative visual impacts associated with LBNL growth. The Proposed Project would incorporate LRDP EIR, as amended, mitigation measures designed to safeguard the aesthetic character of the University-owned, LBNL-managed hillside area. No significant cumulative impact to aesthetic or visual resources is expected.

Air Quality

The Proposed Project would not pose any individually significant air impacts, nor would it result in any significant cumulative air quality impacts. It would be consistent with the LBNL LRDP, and would neither conflict with nor

obstruct implementation of the Ozone Attainment Plan, the Bay Area 2000 Clean Air Plan, nor the Carbon Monoxide Maintenance Plan. The Proposed Project would not violate any applicable air quality standard or contribute substantially to any existing or projected air quality violations. It would not result in a cumulatively considerable net increase of any criteria pollutant, including ozone and its precursors (i.e., ROG and oxides of Nitrogen), or PM-10. No construction or operational emissions—either criteria pollutants or toxic air contaminants—would be expected to exceed any regional, state, or federal thresholds of significance. As operational details and estimates are further developed, the Molecular Foundry project would undergo review and permitting processes from BAAQMD for operational emissions and potential emergency diesel generator emissions. BAAQMD, through its discretionary permitting authority, would require implementation of feasible measures to further reduce construction and operational air impacts and prohibit significant health risks. The Proposed Project would not create or substantially contribute to a significant TAC impact. Project emissions of TACs are expected to be very low in general and negligible at the distance of the nearest residential areas. Moreover, there are no nearby significant ambient TAC concentrations to which the Proposed Project might cumulatively contribute, and any contribution by the Proposed Project would not be cumulatively considerable in any event. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which addressed cumulative air impacts associated with LBNL growth.

Biological Resources

The Proposed Project would not create any new significant cumulative impacts to biological resources. The Proposed Project and the proposed 50X Building would not likely affect any special status species. However, each project would take place in an area that theoretically could be traversed by a member of the state- and Federally-designated threatened Alameda whipsnake species. On the other hand, neither project would take place in or reduce designated Critical Habitat of the Alameda whipsnake, and the Proposed Project and proposed Building 50X project would employ appropriate whipsnake avoidance measures. Other identified projects would likely take place in currently developed areas. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which addressed cumulative biological resources impacts associated with LBNL growth.

Cultural Resources

The Proposed Project would not be located in the vicinity of any other planned projects, nor would it be expected to negatively impact significant cultural resources. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which addressed cumulative historical resources impacts associated with LBNL growth.

Geology, Soils and Seismicity

The Proposed Project would not be located in the vicinity of any other planned projects, nor would it be expected to create any substantial impacts in the area of geology, soils, or seismicity. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which addressed cumulative geology, soils, and seismicity impacts associated with LBNL growth. No significant cumulative geology, soils, or seismicity impacts would be expected to result from the Proposed Project.

Hazards and Hazardous Materials

The Proposed Project would not create any significant cumulative hazards or hazardous materials impacts. The Proposed Project would generate relatively small amounts of TAC emissions in the area. The proposed 50X building

would not generate TAC emissions, as it would be exclusively an office building and because it would not generate new traffic trips. The proposed NEQSS and UC Berkeley LRDP growth would likely generate TAC emissions. However, because these projects, when combined, are not expected to create or add to any toxic air "hot spots" or other areas of significant impact in the area the Proposed Project would affect, this would not be a significant impact. Generation of hazardous materials (not air emissions) would be of relatively small scale and would follow LBNL's strict handling, storage, and disposal procedures. The proposed buildings would be constructed to modern, state-of-the-art fire and earthquake standards. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which addressed cumulative hazards and hazardous materials impacts associated with LBNL growth.

Hydrology and Water Quality

The Proposed Project would not result in a significant cumulative impact to hydrology or water quality. The Project would result in an approximately 1.5-acre loss of permeable surface. The proposed 50X building proposal would likely result in a similar loss of permeable surface; however, these two projects would take place in different watersheds and would represent only an incremental change in each. The proposed City of Berkeley and UC Berkeley projects would generally be in-fill on existing paved surfaces. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which addressed cumulative hydrology and water quality impacts associated with LBNL growth.

Land Use

The Proposed Project would not result in a significant cumulative land use impact. The Project would not be located in the vicinity of any other planned projects, nor would it be expected to result in any negative land use impacts, particularly in concert with other projects. The proposed 50X Building project would, like the Molecular Foundry Building, be located on the LBNL hill site near other major development and utility lines. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which an addressed cumulative land use impacts associated with LBNL growth.

Noise

The Proposed Project would not result in a significant cumulative noise impact. Noise effects from the Proposed Project construction could combine with noise from other construction projects to generate cumulative impacts. However, as described in traffic, above, construction of the projects identified in this section would be staggered over a period of years and there would not be a point at which all projects were fully under construction. In addition, the projects are separated physically and by intervening terrain such that noise impacts from the other projects should not noticeable to the same receptors as noise from construction of the Proposed Project. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which addressed cumulative noise impacts associated with LBNL growth.

Population and Housing

The Proposed Project would not result in a significant cumulative impact to housing resources or population. The Project would not induce a substantial growth in local population, nor would it displace any people or conflict with any housing or population projections in the LRDP or any other local planning documents. The proposed 50X Building project would not add new employees to the LBNL site. City and UCB Campus projects would likely

induce employment growth and, consequently, housing demand, but these should not be measurably affected by the Proposed Project. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which addressed cumulative population and housing impacts associated with LBNL growth.

Public Services

The Proposed Project would not result in a significant cumulative impact to public services in the area. LBNL maintains its own primary public services (fire protection, security, health and safety); the proposed 50X project would decompress existing on-site employees and would thus not substantially add to demand for services. Although City and UCB Campus projects would be expected to incrementally increase demand for off-site services over time, Proposed Project-related demand for off-site services would be negligible. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which addressed cumulative public services impacts associated with LBNL growth.

Traffic and Circulation

The Proposed Project would not result in a significant cumulative impact to area traffic or circulation. The most acute increases in NEQSS construction-related traffic would occur between 2002 and 2005. The Proposed Project and the proposed 50X Building project construction would take place between 2004 and 2006. Buildout of the proposed LBNL and UC Berkeley LRDPs would take place mostly after 2006. Most construction-related traffic effects of these projects, then, would be staggered over a period of several years.

Construction traffic generated by the proposed NEQSS and UC Berkeley LRDP development would increase truck and heavy equipment vehicles and staging along Hearst Avenue and Gayley Road, two prime access routes to LBNL's main Blackberry Gate entrance. These routes would be further used by construction-related traffic accessing the LBNL site. Because LBNL would only use those routes for access to Berkeley Lab and not for staging purposes, and because LBNL can accommodate parking of heavy equipment on site and thus would not require daily commuting of heavy construction vehicles, and due to the fact that LBNL currently intends to reuse excavated material on-site (thus sparing truck trips necessary to provide and/or dispose of excavation fill), and because the Proposed Project construction would be staged during generally different time periods than the City and UCB Campus projects, the Proposed Project would represent only a minor contribution to construction traffic-related impacts on these roadways, and would be within the levels anticipated and discussed in the 1997 Addendum.

Operational traffic from the Proposed Project would be distributed over a wide commute period (and would not be as concentrated during the peak hour as would be typically expected of office workers, for example) and would be further distributed over LBNL's three entrance gates. The proposed 50X Building project would not add to new traffic burdens at LBNL as it would draw exclusively on existing on-site workers. The proposed NEQSS and other UCB Campus and City projects would be expected to add incrementally to traffic in the area that leads to LBNL's Blackberry Canyon entrance (but not likely the other two entrances), although the Proposed Project would not likely pose a considerable contribution to any peak-hour commute impacts in concert with them. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which addressed cumulative traffic and circulation impacts associated with LBNL growth.

Utilities/Energy

The Proposed Project would not result in a significant cumulative impact to .utilities or energy resources. The Building 50X project, NEQSS, and other City and UCB Campus projects would be expected to increase demand for regional utilities and energy provision. However, these utilities are managed to accommodate region-wide growth and demand increase; these projects would be expected to fit within this long-term planning. Demand for utilities for all projects combined would not represent a substantial increase in demand for regional providers and would thus not be cumulatively significant. Utility demands, including those for sanitary sewer service, fall well below those levels anticipated, analyzed, and mitigated for in the 1987 LRDP EIR, as amended. LBNL, UC Berkeley, and the City of Berkeley all encourage or mandate water and energy saving devices and practices. In addition, the Proposed Project is consistent with the LRDP and LRDP EIR, as amended, which addressed cumulative utilities/energy impacts associated with LBNL growth.

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18. MANDATORY FINDINGS OF SIGNIFICANCE

Discussion:

a,b,c) With the mitigation measures described in this environmental assessment, the Proposed Project would not have a cumulatively considerable impact on persons, habitats, or endangered plants or animals. Because the project is located in a secured area, and is not accessible to nearby residents, and because both the Oakland and Berkeley General Plans control development in the vicinity of the site, the project would not by itself result in additional development that would increase the nearby residential population.

19. SUMMARY OF MITIGATION MEASURES APPLIED TO PROPOSED PROJECT

Project-Specific Mitigation Measures

Mitigation Measure
Biological Resources: Molecular Foundry Mitigation Measure 1: Prior to the initiation of excavation, construction, or vehicle operation, the project area shall be surveyed by a designated monitor, trained in Alameda whipsnake identification and ecology by a qualified biologist, to ensure that no Alameda whipsnakes are present. This survey shall not be intended to be a protocol-level survey, but rather one designed to verify that no snakes are actually on site.
Molecular Foundry Mitigation Measure 2: All on-site workers shall attend an Alameda whipsnake information session conducted by the designated monitor. This session shall cover identification of the species and procedures to be followed if an individual is found on site.
Molecular Foundry Mitigation Measure 3: All lay-down and deposition areas shall be inspected each morning by the designated monitor to ensure that Alameda whipsnakes are not present. All construction activities that take place on the ground shall be performed in daylight hours. Vehicle speed on site shall not exceed 15 miles per hour. Construction materials, soil, construction debris, or other material shall be deposited only on areas where vegetation has been mowed and any snakes present would be readily visible.
Molecular Foundry Mitigation Measure 4: The site is subject to annual vegetation management involving the close-cropping of all grasses and ground cover on the project area; this management shall be done prior to initiation of construction. Re-mowing shall be done if grass or other vegetation on the project site becomes high enough to conceal whipsnakes during the construction period.
Cultural Resources Molecular Foundry Mitigation Measure 5: If an archaeological and paleontological artifact were discovered on-site during construction, all activities within a 50-foot radius would be halted and a qualified archaeological/paleontological monitor would be summoned within 24 hours to inspect the site. If the find were determined to be significant and merit formal recording or data collection, time and funding would be required to salvage the material. Any archaeologically important data recovered during monitoring would be cleaned, catalogued, and analyzed, with the results presented in a report of finding that satisfies professional standards.

Existing Mitigation Measures from LRDP EIR, as amended, to be applied

Aesthetic Resources

Mitigation Measure III-F-1a:

Buildings will occupy as limited a footprint as feasible. They will incorporate features that enhance flexibility and future versatility.

Mitigation Measure III-F-1:

Buildings will be planned to blend with their surroundings and be appropriately landscaped. Planned objectives will be for new buildings to retain and enhance long distance view corridors and not to compromise views from existing homes. New buildings will generally be low-rise construction.

Mitigation Measure III-F-2:

Any new facilities will not use reflective exterior wall materials or reflective glass, to mitigate the potential impacts of light and glare.

Mitigation Measure III-D-2a:

Revegetation of disturbed areas, including slope stabilization sites, using native shrubs, trees, and grasses will be included as part of all new projects.

Air Quality

Mitigation Measure III-J-1:

Construction contract specifications would require that during construction exposed surfaces would be wetted twice daily or as needed to reduce dust emissions. In addition, contract specifications would require covering of excavated materials.

Mitigation Measure III-J-2:

LBNL will design building ventilation systems to minimize emission of criteria air pollutants following compliance with all applicable regulatory requirements (e.g., NSR).

Biological Resources

Mitigation Measure III-D-2a:

Revegetation of disturbed areas, including slope stabilization sites, using native shrubs, trees, and grasses will be included as a part of all new projects.

Mitigation Measure III-D-2b:

Invasion of opportunistic colonizer trees and shrubs will be controlled. A maintenance program for controlling further establishment of eucalyptus, green wattle acacia, French broom, cotoneaster, and other opportunistic colonizer shrubs and trees in disturbed areas on-site will be undertaken. Herbicides will not be used for this purpose.

Mitigation Measure III-D-2c:

Removal of native trees and shrubs will be minimized. (To the greatest extent possible, the removal of large coast live oak, California bay, and Monterey pine trees will be avoided.)

Mitigation Measure III-D-2d:

Disturbance to the site perimeter buffer zones will be minimized.

Mitigation Measure III-D-2e:

LBNL activity and encroachment in Blackberry Canyon will be minimized.

Geological Resources

Mitigation Measure III-B-1:

Geologic and soils studies will be undertaken during the design phase of each LBNL building project. Recommendations contained in those studies would be followed to ensure that the effects of landsliding, lurching, and liquefaction potential will not represent a significant adverse impact during a seismic event.

Mitigation Measure III-B-2a:

Excavation and earth moving will be designed for stability, and accomplished during the dry season when feasible. Drainage will be arranged to minimize silting, erosion, and landsliding. Upon completion, all land will be restored, covering exposed earth with planting.

Mitigation Measure III-B-2b:

Foundations for proposed structures will be designed in accordance with geologic and soils engineering recommendations to minimize the long-term possibilities of landslide.

Mitigation Measure III-B-2c:

Excavations will be shored as required by law to preclude minor short-term landslides during construction.

Mitigation Measure III-B-2d:

Revegetation of disturbed areas, including slope stabilization sites, using native shrubs, trees and grasses will be included as part of all new projects.

Hazardous Materials

Mitigation Measure IV-K-1:

LBNL will prepare an annual self-assessment summary report. The report will summarize environment, health, and safety program activities, and identify any areas where LBNL is not in compliance with laws and regulations governing hazardous materials, hazardous waste, hazardous materials transportation, regulated building components, worker safety, emergency response, and remediation activities.

Mitigation Measure IV-K-2a:

Prior to shipping any hazardous materials to any hazardous waste treatment, storage, or disposal facility, LBNL will confirm that the facility is licensed to receive the type of waste LBNL is proposing to ship to that facility.

Mitigation Measure IV-K-2b:

LBNL will continue its waste minimization programs and strive to identify new and innovative methods to minimize hazardous waste generated by LNBL activities.

Mitigation Measure IV-K-3:

LBNL will require hazardous waste haulers to provide evidence that they are appropriately licensed to transport the type of wastes being shipped from LBNL.

Mitigation Measure IV-K-5:

In addition to implementation of the numerous employee communication and training requirements included in regulatory programs, LBNL will undertake the following additional measures as ongoing reminders to workers of health and safety requirements:

Posting, in areas where hazardous materials are handled, of phone numbers of LBNL offices which can assist in proper handling procedures and emergency response information.

Continuing to post "Emergency Response and Evacuation Plans" in all LBNL buildings.

Continuing to post all sinks in areas where hazardous materials are handled with signs reminding users that hazardous materials cannot be poured down the drain.

Continuing to post dumpsters and central trash collection areas where hazardous materials are handled with signs reminding users that hazardous wastes cannot be disposed of as trash.

Mitigation Measure IV-K-6:

LBNL will update its emergency preparedness and response program on an annual basis, and will provide copies of this program to local emergency response agencies and to members of the public upon request.

Hydrology and Water Quality

Mitigation Measure III-B-2a:

Excavation and earth moving will be designed for stability, and accomplished during the dry season when feasible. Drainage will be arranged to minimize silting, erosion, and landsliding. Upon completion, the land will be restored, covering exposed earth with planting.

Mitigation Measure III-B-2d:

Revegetation of disturbed areas, including slope stabilization sites, using native shrubs, trees, and grasses, will be included as part of all new projects.

Mitigation Measure III-C-2:

Each individual project will continue to be designed and constructed with adequate storm drainage facilities to collect surface water from roofs, sidewalks, parking lots and other surfaces and deliver it into existing channels which have adequate capacity to handle the flow.

Land Use and Plans

Mitigation Measure III-G-2:

Buildings proposed for development at LBNL will follow the design guidelines contained in the LBNL LRDP, as amended.

Noise

Mitigation Measure III-K-1:

Projected noise levels will be compared with ambient noise levels and the Berkeley Noise Ordinance limits, or other applicable regulations. Acoustical performance standards would be included in future construction documents. LBNL will continue to design, construct, and operate buildings and building equipment taking into account measures to reduce the potential for excessive noise transmission.

Mitigation Measure III-K-2:

Noise-generating construction equipment will be located as far as possible from existing buildings. If necessary, windows of laboratories or offices will be temporarily covered to reduce interior noise levels on-site.

Traffic and Parking

Mitigation Measure III-I-Ia:

Discourage single-occupant-vehicle use and encourage the use of other transportation options. LBNL will continue to implement its Transportation System Management (TSM) Program. The specific features of this program include:

Establishing transportation modal-split goals for LBNL which will result in a reduction in the number and percentage of single-occupant automobiles being driven to and from LBNL;

Assigning a transportation planner to coordinate the design and implementation of TSM programs;

Promoting carpools by creating a carpool matching program;

Providing preferential carpool parking;

Developing a vanpooling program through funding support of Berkeley TRIPS;

Permitting staggered (flex-time) work hours;

Developing an annual monitoring program to evaluate the programs in relation to established goals and identify new elements which should be added to the program;

Promoting the TSM programs by giving orientation briefings to new employees, providing information aids to be distributed to LBNL employees, organizing an information center, and selling transit tickets on-site at LNBL;

Reviewing LBNL shuttle service and transit interface facilities; and

Reviewing bicycle routes and storage facilities for improvements.

Mitigation Measure III-I-1b:

LBNL will conduct bi-annual peak hour traffic counts in and around LBNL. In particular, the bi-annual count will include the Gayley Road corridor between Hearst Avenue and Bancroft/Piedmont.

Mitigation Measure III-I-1c:

If and at such time as the level of service at intersections along the Gayley Road corridor reaches "D," a review of necessary improvements will be conducted with UC Berkeley;

Mitigation Measure III-I-1d:

LBNL will pay for its fair share of allowable and necessary signalization improvements along the Gayley Road corridor proportional to LBNL's share of increases in traffic.

Mitigation Measure III-I-1e:

Details of the Gayley Road corridor improvements, including environmental assessment of the improvements, will be reviewed at the time the thresholds are reached.

Mitigation Measure III-I-2:

LBNL will continue to implement and monitor the implementation of its Transportation System Management Program.

Utilities

Mitigation Measure III-M-1:

Prior to construction of any project which may add significant sewer load to the city sanitary sewer system, LBNL will investigate the potential impact of the project on the city system. LBNL will identify mitigation measures to accommodate the sewer load if the impact investigation indicates that the city system could not accommodate the additional sewage. LBNL will reimburse the City of Berkeley and/or EBMUD for its fair share of allowable and necessary sewer improvement capital costs which are needed to accommodate increased demand and mitigate sewer impacts resulting from implementation of the LBNL LRDP.

APPENDIX A

COMMENTS AND RESPONSES

Author	Designation	Comments
State Agency		
CA State Clearinghouse	n.a.	--
Regional Agency		
California Regional Water Quality Control Board	RWQCB	1-7
East Bay Municipal Utilities District	EBMUD	8-23
Local Agency		
City of Berkeley—Nabil Al-Hadithy, Toxics Mgt. Division	NAH	24-33
City of Berkeley –Sherry Kelly, City Clerk	SK	34
General Public/Private Organizations[16]		
Ann Reid Slaby	AS	35-37
Gene Bernardi	GB	38-42
Dona Spring, Berkeley City Councilmember	DS	43-50
Catherine Orozco	CO	51-56
Janice Thomas, Pres., Panoramic Hill Association	JT	57-90
Mark McDonald	MM	91-95
Susan Cerny	SC	96
James Sharp/Daniella Thompson	JS	97
Pamela Sihvola/LA Wood	SW	98-107
Leuren Moret, City of Bekeley Environmental Commissioner	LM	108-116
Robert Breuer	RB	117-119

[16] These include comment letters from public officials who have corresponded on private stationary.

COMMENT LETTERS AND COMMUNICATIONS

All comment letters received are reproduced in this section. Several comment letters include considerably lengthy attachments, including attachments that are not readily reproducable for this format, including large sized maps and a video tape. Therefore, attachments are not reproduced in this document but are nonetheless made available for review by The UC Regents.

California Regional Water Quality Control Board
San Francisco Bay Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov
1515 Clay Street, Suite 1400, Oakland, California 94612
Phone (510) 622-2300 • FAX (510) 622-2460

Gray Davis
Governor

Date: January 3, 2002
File No. 2198.09 (BKW)

Jeff Philliber
Regents of the University of California
#1 Cyclotron Road, MS 90K0198
Berkeley, CA 94720

Re: Draft Environmental Assessment for Construction and Operation of the Molecular Foundry at Ernest Orlando Lawrence Berkeley National Laboratory, Berkeley, California
SCH Number 2002122051

Dear Mr. Philliber:

Regional Water Quality Control Board (Regional Board) staff have reviewed the *Draft Tiered Initial Study Checklist and Proposed Mitigated Negative Declaration for Construction and Operation of the Molecular Foundry at Ernest Orlando Lawrence Berkeley National Laboratory, Berkeley, California* (IS/MND). The IS/MND evaluates the potential environmental impacts that might reasonably be anticipated to result from constructing the Molecular Foundry, a six-story building of approximately 86,500 gross square feet (gsf) and a utility building of approximately 8,000 gsf (Proposed Project), in the southeast corner of the Berkeley Laboratory site. Construction is anticipated between January 2004 and February 2006. Regional Board staff have the following comments on the IS/MND.

RWQCB-1

Comment 1
Page 24, Storm Drainage and Impermeable Area. The IS/MND contains the following text, "The Proposed Project would add approximately 1.5 acres of impervious surface to the project site. This is less than one-half of one-percent of the total watershed area of 585 acres." With the respect to impacts of the Proposed Project on storm drainage, this statement is inappropriate and potentially misleading. Negative impacts associated with stormwater runoff are cumulative within each impacted watershed. Rarely does a single project result in the creation of impervious surfaces that represent a significant percentage of the total watershed area. Rather, it is the cumulative impact of many projects in the watershed that produces undesirable environmental impacts. Therefore, it is important that each individual project provide mitigation for its own impacts on stormwater runoff. The Applicant should design the Proposed Project to include appropriate mitigation for stormwater impacts.

Comment 2
Page 25, Storm Drainage and Impermeable Area. The IS/MND contains the following text, "Surface water drainage from the project site would be managed through the existing

RWQCB 2

storm drain system, which discharges to a detention basin formed by a dam in Strawberry Creek." Runoff from the Project should be provided with treatment to the maximum extent practicable (MEP). The proposed collection of rainwater from the roofs and balcony areas of the new buildings for use in irrigation and other reclaimed water programs could provide some of this treatment. However, in order to mitigate stormwater impacts from the Proposed Project, mitigation measures that include stormwater treatment should be incorporated in the IS/MND, rather than being discussed as a possibility in this section.

RWQCB 3

In addition, please provide Regional Board staff with a description of the stormwater treatment provided by the detention basin in Strawberry Creek.

RWQCB 4

Comment 3.
Pages 75 through 78, Hydrology and Water Quality. This section of the IS/MND does not include mitigation for contaminants that will be present in runoff from the roofs and paved surfaces of the Proposed Project. This section of the IS/MND should be expanded to include stormwater treatment best management practices (BMPs).

RWQCB 5

Regional Board staff strongly encourage the use of landscape-based stormwater treatment measures, such as biofilters and vegetated swales, to manage runoff from the Project site. Since landscape-based stormwater treatment measures require that some of the site surface area be set aside for their construction, the proper sizing and placement of these features should be evaluated early in the design process to facilitate incorporation of the features into the site landscaping. Treatment controls should be sized to appropriately treat 85 to 90 percent of annual average stormwater runoff from the site. Treatment of 85 to 90 percent of annual average stormwater runoff has been found to provide a cost-effective level of treatment in the western United States and is viewed by many municipalities as the design that achieves the MEP definition under the Clean Water Act (*Urban Runoff Quality Management, Water Environment Federation (WEF) Manual of Practice No. 23, American Society of Civil Engineers (ASCE) Manual and Report on Engineering Practice No. 87*, Joint Task Force of the WEF and ASCE, 1998).

RWQCB 6

Regional Board staff recommend that the project proponent refer to *Start at the Source*, a design guidance manual for storm water quality protection, for a fuller discussion of the selection of stormwater management practices. This manual provides innovative procedures for designing structures, parking lots, drainage systems, and landscaping to mitigate the impacts of stormwater runoff on receiving waters. This manual may be obtained from most cities' planning departments, or by contacting the San Francisco Estuary Project (510-622-2465).

RWQCB 7

Regional Board staff discourage the use of inlet filter devices for stormwater management. Filtration systems require a maintenance program that is adequate to maintain the functional integrity of the systems and to ensure that improperly maintained filtration devices do not themselves become sources of stormwater contaminants or fail to function. Regional Board staff have observed problems with the use of inlet filter inserts, since these devices require high levels of maintenance and are easily clogged by leaves or other commonly occurring debris, rendering them ineffective. Research conducted by the California Department of Transportation has demonstrated that inlet filters can be clogged by a single storm event. The study found that these devices required maintenance before and after storm events as small as 0.1 inch of rain.

If you have any questions, please contact me at (510) 622-5680 or by e-mail at bkw@rb2.swrcb.ca.gov.

Sincerely,

Brian Wines

Brian Wines
Water Resources Control Engineer
South/East Bay Section

cc State Clearinghouse, Attn: Gregoria Garcia, P.O. Box 3044, Sacramento, CA 95812-3044

California Environmental Protection Agency

EAST BAY
MUNICIPAL UTILITY DISTRICT

January 21, 2003

Mr. Jeff Philiber, Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90K0198
Berkeley, CA 94720

Dear Mr. Philiber:

Re: Initial Study and Mitigated Negative Declaration - Construction and Operation of the Molecular Foundry Ernest Orlando Lawrence Berkeley National Laboratory, Berkeley, California

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to review the Initial Study and Mitigated Negative Declaration (MND) for the Construction and Operation of the Molecular Foundry at Ernest Orlando Lawrence Berkeley National Laboratory in Berkeley, California. EBMUD has the following comments regarding water service, water conservation and wastewater.

WATER SERVICE

To clarify on page 99, under Discussion, EBMUD proposes the following language:

EBMUD 1

The proposed project is served by EBMUD's Shasta Pressure Zone (PZ), that provides water service to customers within an elevation range of 900 to 1050 feet, and the Berkeley View PZ that provides water service to customers within an elevation range of 1050 to 1250 feet. The Lawrence Berkeley National Laboratory site receives its water supply via a 12-inch meter in Campus Drive in the Shasta PZ and via a 6-inch meter in Summit Road from the Berkeley View PZ. In addition, Department of Energy (DOE) owns and maintains two 200,000-gallon storage tanks on site for emergency supply in the event of interruption of EBMUD's service and a third 200,000-gallon emergency tank is under construction. The existing distribution system supplies water for all laboratory uses and has sufficient capacity to meet the flow rate and duration requirements for both daily use and fire protection. Although the project would be expected to increase use by approximately 7,050 gallows per day, it would not cause a significant impact as the two existing EBMUD PZs have a combined storage capacity of 3.1 million gallons.

Should there be a need for additional water service, the project sponsor should contact EBMUD's New Business Office and request a water service estimate to determine costs and conditions for providing water service to the proposed development.

WATER CONSERVATION

EBMUD 2

Based on the information provided on pages 24 and 25 under Storm Drainage and Permeable Area, there may be an opportunity to develop on-site storm water reuse to reduce potable water demand for irrigation or other non-domestic uses. This should be investigated further.

375 ELEVENTH STREET . OAKLAND . CA 94607-4240 . (510) 286-0500

Some areas on page 26 under Landscaping require additional information and clarification. The MND should provide the following statements:

EBMUD 3

1. The statement "*All trees placed by the project would be irrigated as necessary*" should be amended to include all landscaping, not just trees. In addition, comments describing the proposed irrigation system should include how the irrigation design will minimize over-spray and runoff. The statement should describe how the project will meet or use less than a landscape water budget not exceeding 80 percent of reference evapotranspiration. (ET) For Berkeley, this is 29 inches of irrigation per year. Note: average ET for Berkeley is 36 inches per year. 80 percent of 36 equals 29 inches. This represents an upper-limit, not-to-exceed amount of annual irrigation. The sponsor is encouraged to design the project in such a way that requires even less demand than this upper-limit amount for landscape irrigation.

EBMUD 4

EBMUD 5

2. The statement "*Plant materials will be selected based on their indigenous, water-saving, and low-maintenance characteristics.*" should more emphasize the water savings criteria. For example the statement could be revised to read that "most if not all plants will be low to very low water use as described and classified in the University of California Cooperative Extension's Guide to Estimating Irrigation Water Needs of Landscape Plantings in California".

EBMUD 6

3. A statement should be included that new projects will be subject to EBMUD's Water Service Regulations at time of application for service.

EBMUD 7

4. Additionally,
   a. EBMUD encourages sub-metering of landscape irrigation.

EBMUD 8

   b. EBMUD requests a legal description and accurate calculation of the irrigated landscape area (e.g. measured in square feet) be forwarded to EBMUD for inclusion in EBMUD's Irrigation Reduction Information System which allows the project to better achieve water conservation.

EBMUD 9

   c. Landscaping and irrigation practices should be consistent with the State Model Water Efficient Landscape Ordinance AB 325.

EBMUD 10

   d. EBMUD recommends the use of new ET based self-adjusting irrigation timers for automatic irrigation systems and the use of drip irrigation for irrigating planting areas.

EBMUD 11

   e. EBMUD offers landscape plan review services for new applicants.

EBMUD 12

EBMUD acknowledges the project sponsors consideration of installing low-flow plumbing fixtures and water saving appliances as described on page 27 under Water Supply. In addition to state and federally mandated water efficient plumbing standards, EBMUD encourages the use of water efficient appliances and other new technology to further water conservation practices. These practices may include multiple pass or re-circulating cooling systems and separate metering of significant cooling, process, or other water uses in the proposed laboratory facility.

EBMUD 13

In general, EBMUD recommends that the local Water Conservation Landscape Ordinance be followed that automatic irrigation timers have multiple programs and start times, that landscaping and irrigation systems be designed to enable appropriate irrigation of plants with different water needs without over-spray or runoff, and the use of drought resistant plants, use of inert materials and minimal use of turf areas.

EBMUD 14

To help mitigate the impacts on EBMUD's finite water supply, EBMUD recommends that water conservation measures for both internal and external use be incorporated into the design and construction of the proposed project. EBMUD encourages the use of equipment, fixtures and technologies that further water conservation and provide for efficient long-term water use. Due to EBMUD's limited water supply, all customers should plan for shortages in times of drought.

WASTEWATER

EBMUD 15

EBMUD's Main Wastewater Treatment Plant is anticipated to have adequate dry weather capacity to treat the proposed wastewater flow from this project, provided this wastewater meets the standards of EBMUD's Environmental Services Division's source control program. However, the City of Berkeley's Infiltration/Inflow (I/I) Correction Program set a maximum allowable peak wastewater flow from each subbasin within the City and EBMUD agreed to design and construct wet weather conveyance and treatment facilities to accommodate these flows. EBMUD prohibits discharge of wastewater flows above the allocated peak flow for a subbasin because conveyance and treatment capacity for wet weather flows may be adversely impacted by flows above this agreed limit. The project documentation does not contain information confirming that, per the City of Berkeley Public Works Department, there is available capacity within the subbasin flow allocation and that it has not been allocated to other developments. Suggested language to include in the project documentation is as follows: "The City of Berkeley Public Works Department has confirmed that there is available wastewater capacity within Subbasin *(insert subbasin number here)* that is reserved for this project."

EBMUD 16

The project documentation does state that "in 1990 UC agreed to contribute $250,000 to the City of Berkeley for sewer improvements that would mitigate the impact of and accommodate new University projects." However, no mention is made in the environmental documentation of improvements included in the new project to control or reduce the amount of I/I in the existing sanitary sewer collection system. In general, the project should address the replacement or rehabilitation of the existing sanitary sewer collection system to prevent an increase in I/I. The main concern is the increase in total wet weather flows, which could have an adverse impact if the flows are greater than the maximum allowable flows from this subbasin.

For further information concerning these comments, please contact me at (510) 287-1084.

Sincerely,

Marie A. Valmores

Marie A. Valmores
Senior Civil Engineer

MAV:AMV:sb
sb03_025.doc
cc: Katherine Johnescu, DOE NEPA Document Manager

Subject: Draft Tiered Initial Study - NNI Technology
Date: Mon, 16 Dec 2002 11:40:02 -0800
From: "Al-Hadithy, Nabil" <NAl-Hadithy@ci.berkeley.ca.us>
To: "'tpowell@lbl.gov'" <tpowell@lbl.gov>
CC: "'jgphilliber@lbl.gov'" <jgphilliber@lbl.gov>

Hi Terry, I have an urgent request for details on above report. It may come up at Council and staff needs to be prepared with answers. You may wish to review the Cobweb for the agendas. If I find out it is definitely on, I will inform you.

NAH 1 | My principal request is to talk to someone who can explain the technology involved.

NAH 2 | Secondly, will be a request to review volumes and activity of isotopes, and other radiation sources associated with the project. Please note, we (the City) are not expert in rads and need all the assistance we can get.

NAH 3 | Third are reviews conducted by other agencies. Has the AQMD, DHS Rad section, US EPA rad section, DoE, reviewed the project and determined its safety? It would be helpful to quote such reviews.

I also have some specific questions :

NAH 4 | I have read page 8 describing the technology and it is vague "design, fab, characterizn and use of materials, devices, and systems thro the...." Can this be beefed up?

NAH 5 | The Cumulative Impacts on page 57 are very reassuring. Are they based on any level of detail study or on general comparisons alone? Have the agencies I cited above reviewed your conclusions and agreed with them?

NAH 6 | Is there a completed Hazard Analysis Report? I assume that somewhere in some document LBL has looked into total chemicals to be used that can be shared with the City. Part of the SARA Title III as adopted by Cal HSC Title 20 Ch 6.95 requires all additional chemicals to be reported to the local agency.

NAH 7 | I would like verification that LBNL does not have excess of Acutely Haz Materials. It may be that you are relying on an exemption Toxics Management gave to LBL some years ago that exempted you from RMP.

NAH 8 | P 48. Construction was dealt with very quickly. It basically claims it is within the LRDP and hence not significant. As you know, PM is an evolving science and we have seen some recent health reviews showing construction and transportation projects (diesel emissions) creating an unhealthful situation. We also have a new stand by generator that can create significant diesel discharges. Even though the project seems to be of limited scale, we would like to see LBNL look more deeply at this potential health impact.

NAH 9 | Page 55 says the LRDP will adequately handle the excess chemicals discharged to the air by making the stacks and the velocity high. Do you have measurements of an annual basis for the expected additional chemical, rad discharges to the atmosphere? Has any measure of health risk been done?

NAH 10 | Page 56 says that a study will be done "closer to the actual contruction of the facility" and I dont know what that means.

Thanks much.

Nabil A. Al-Hadithy, PhD
City of Berkeley, Toxics Management Division
2118 Milvia St, Berkeley, CA 94704

CITY OF BERKELEY

City Clerk Department

January 24, 2003

Jeff Philiber, Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
1 Cyclotron Road, MS 50A-4119
Berkeley, CA 94720

Dear Mr. Philiber:

SK 1

The Berkeley City Council at its meeting of January 14, 2003, approved a motion requesting the Lawrence Berkeley National Laboratory extend the public comment period on the negative declaration for the proposed construction of the Molecular Foundry to February 7, 2003 for the purposes of: 1) holding a public meeting inviting the neighbors and the community for the purposes of making a presentation on the project and allowing for substantial time for public comments and questions; and 2) providing an estimated hazardous materials inventory for City staff and the public to review and comment on.

As indicated in City Manager Rucker's letter of December 19, 2002, it is important for the Berkeley community to have input into the project development process, especially for public sector proposals. We have made efforts to improve access to review materials, accommodate community requests for reasonable, public comment timelines; allow the Council the opportunity to review the environmental documents on the proposals and take input from Berkeley residents.

The City appreciates that LBNL extended the comment period until January 21, 2003 thus allowing Council to debate this development project.

Sincerely,

Sherry M. Kelly
City Clerk

cc: Mayor and City Council
Weldon Rucker, City Manager
Reid Edwards, Director, Government Relations, LBNL
Manuela Albuquerque, City Attorney
Carol Barrett, Planning Director
Arrietta Chakos, City Manager's Office
Nabil Al-Hadithy, Toxics Management Division

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January 27, 2003

Jeff Philliber, Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90K
Berkeley, CA 94720

RE: Molecular Foundry

Dear Mr. Philliber:

AS-1 This letter is to request an Environmental Impact Report for the planned Molecular Foundry. This building is to be built in a hazardous fire area, close to earthquake faults, including the Hayward Fault due to have a major earthquake in the near future. It is also sited on hill that has experienced many sumps, which have been quite expensive to repair.

AS-2 Furthermore, the technology to be used in the Molecular Foundry is unknown to the vast majority of the public and of course, its safety is in question. The site is close to recreational and public facilities and it would useful to know what some worst case scenarios are.

AS-3 While we hope that the fire of 1991 never happens again, it is more than clear that had the winds been blowing north, instead of as they were to the South, the Lawrence Berkeley Laboratory complex of buildings would have been destroyed.

Thank you for your consideration of this request.

Sincerely,

Ann Reid Slaby

Ann Reid Slaby, PhD
Attorney at law
345 Panoramic Way
Berkeley, CA 94704-1833.

page one of two pages Jan 27, 2003

Jeff Chilliber
Environmental Planning Coördinator
LBNL.
One Cyclotron Rd. MS. 70A0198
Berkeley, CA. 94720.

COMMENTS ON MOLECULAR FOUNDARY.

Dear Mr. Chilber,

GB-1 Construction of the molecular Foundary should not commence until an Environmental Impact Report and an Environmental Impact Statement have been completed and submitted to the public for review, and comment at a formal public Hearing.

GB-2 More detail is needed regarding exactly what sort of projects will be worked on at the Foundary. Also it is important that the cumulative impact of this project along with other projects taking place simultaneously at the LBNL be considered. For example; the decommissioning and decontamination of the National Tritium Labeling Facility which has not yet been completed; the deconstruction, decommissioning

GB-3 and decontamination of the Bevatron and Hilac, as well as debris hauling therefrom. Furthermore these projects together with the H.C. N.E. quadrant demolition and construction will surely have a large impact on surrounding neighborhoods over and above the obvious contribution to traffic congestion and deterioration of the roadways.

page two of two pages.

Jeff Phillipsen (cont.)

GB-4 I am opposed to the building of the Molecular Foundary, near Chicken Creek & tributary of Strawberry Creek. There is far too much development already in the Canyon, a landslide area with earthquake faults as well as a Critical Fire Area. Furthermore, the Molecular Foundary's Nanotechnology is closely tied in with Nuclear Weapons Hazard and Biowarfare.

GB-5 I refer you to Sean Howard's article "Nanotechnology and Mass Destruction: the Need for an Inner Space Treaty" in Disarmament Diplomacy No. 65 July and August, 2002.

In this article Howard warns of the dangers of enhanced, or new types of weapons of mass destruction emerging from the development of nanotechnology.

The Molecular Foundary is a user facility, as well as a Dept. of Energy project. The D.O.E was originally the Atomic Energy Commission, and both the DOE and AEC acts as partners with the Dept. of "War."* Why should it be we expect that the Molecular Foundary will be involved with projects that will enhance the mission of the Dept of "War"?

Gene Bernardi
9 Arden Rd. Berkeley, CA. 94707

* actual name, Dept. of Defense, is no longer appropriate

/

Dona Spring
2180 Milvia St
Berkeley CA 94704

Jeff Philliber, Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90K
Berkeley, CA 94720

Subject: Lawrence Berkeley National Laboratory Molecular Foundry

Date: 1-30-2003

Dear UC Regents,

I am writing to you be on behalf of Berkeley residents to ask that you not certify the negative declaration on the proposed Molecular Foundry at the Lawrence Berkeley National Laboratory. As you may be aware, there are many serious environmental and economic consequences to this project and it should not be approved with out further studies and analysis. Many of its serious impacts have not been adequately addressed by the negative declaration. The project as currently planned will accelerate the continual deterioration of Berkeley's environment and quality of life.

DS 1 I ask that the Regents direct the staff of the Lawrence Berkeley National Laboratory LB NL to conduct an environmental impact report to explore alternatives to the project as proposed. Mitigations to the impacts must be properly addressed. The location of the proposed Molecular Foundry is in a very fragile environmental area. It is located in Strawberry Canyon with only one access road in and out of a high hazard area. Strawberry Canyon is on an earthquake fault and it is also adjacent to an area prone to wildfires such as the one that occurred in October of 1991.

DS 2 In addition to this being hazardous area in which to locate more research facilities, the Strawberry Canyon is one of the few remaining open spaces on the Berkeley campus. This building will add more development that will be detrimental to the Canyon's fragile ecosystem that had already lost much of it ground cover of trees and shrubs making the area prone to possible mud slides in combination with seismic activity.

DS 3 In October of 2000 the LB NL staff committed to performing a long-range development plan in the year 2002 for future last expansion. It is a violation of the California Environmental Quality Act to perform piecemeal development

without ascertaining the cumulative impacts of all the projects in total. The negative declaration on the project failed to take into account the cumulative impacts from UC Berkeley's development such as the 360,000 square feet North East quadrant in the northeast corner of the campus. In addition UC is planning to build another building—the Mathematics Sciences Research Institute in Strawberry Canyon and these impacts have not been factored in as well. DS 3

The City of Berkeley is facing severe budget deficits due to rising personnel costs and state take a ways. We are freezing all positions in including firefighting positions and will have to entertain further reductions and even possible layoffs to balance our budget. The City of Berkeley does not have the hazardous or firefighting personnel to cover more developments in high hazard areas. In addition to this impact, there are impacts on our cities infrastructure such as it sewers, storm drains, streets and sidewalks, which are crumbling because of lack of funds to repair. This project will only add to this long-term deficit and if it proceeds, it must contribute financially to provide for our sewer and other infrastructure needs or else the City of Berkeley will not be able to provide sewer and storm drain connections. There is also a severe traffic and parking problem in Berkeley due to commuters coming to work and UC Berkeley and the Lawrence Berkeley National Laboratory. This project has no adequate means to mitigate additional traffic and parking impacts. DS 4 DS 5 DS 6

I also question whether the federal dollars are going to be able to sustain this project in the future given the precarious state of the economy and the future inevitable budget cuts. One alternative that should be studied is how current laboratory space could be used to do the research involved in this project as a cost saving mechanism. DS 7

The community is not been provided with any information regarding the possibility of hazardous materials or the kind of organisms and animals will be used in this building. DS 8

I would invite the Regents to contact my office if they would like a tour of the area.

Sincerely,

Dona Spring

Council member Dona Spring

208 Panoramic Way
Berkeley, CA 94704
February 3, 2003

Jeff Philliber, Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90K
Berkeley, CA 94720

Dear Mr. Philliber

I urge the Regents to conduct a full Environmental Impact Report prior making any decision to build in Strawberry Canyon. The proposed Nanotechnology Building: (1) threatens the safety of residents and workers in the area, (2) increases traffic; (3) poses unknown risks to health and safety; and (4) has a negative impact on the natural environment of the area.

A full EIR will provide you with sufficient information regarding these risks and permit you to consider alternative locations that impose less risk to people and the environment.

CO-1 1. Safety
Strawberry Canyon is located near dangerous earthquake and fire areas, and has limited egress in case of a disaster. The proposed facility is located less than a 1/3 of a mile from the Panoramic Hill neighborhood where hundreds of families live in an area the city has zoned E-SR (Environmental Safety Residential) because of vulnerability to severe damage and destruction due to the location's proximity to fire and earthquake hazards and its substandard vehicular access.

CO-1A The proposed facility would affect the users of Strawberry Canyon Recreation Association, the Levine-Fricke Field, and the Witter Rugby Field. I have been informed that other such buildings require a buffer zone. These conditions are not mentioned in the description of the project location. The potential land use conflict warrants more discussion and input from the public.

CO-2 2. Traffic
The impact of up to 150 employees on the already congested bumper-to-bumper traffic on Gayley, Piedmont, and Belrose Avenues should be considered.

CO-3 3. Potential Risks
While nanotechnology clearly has benefits, possible negative effects must be considered before building in this populated area. As the Columbia tragedy reminds us, science has its risks. Can you guarantee that there will be no adverse effects on the populated areas?

CO-4

4. The Natural Environment
Efforts must be made to conserve the beauty and fragility of this natural area. Already the Botanical Garden has a Genome Laboratory and a Hazardous Waste Storage Handling Facility next door. A six story building, and a combined 94,500 gross square feet is a death call for the natural feeling of Strawberry Canyon and will impact on the endangered species that remain in proximate, undeveloped parts of the Canyon.

CO-5

I urge you to conduct a full EIR, which would permit you to hear from the public and to consider alternative locations.

Very truly yours,

Catherine Orozco

Panoramic Hill Association

P.O. Box 5428
Berkeley, California 94705

February 1, 2003

Jeff Philliber, Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90 K
Berkeley, CA 94720

Re: Environmental Review of Proposed Molecular Foundry

To the Regents of the University of California:

I am writing on behalf of the Panoramic Hill Association as requested by unanimous vote at a General Meeting of the membership on February 2, 2003. Our membership includes 95 households and distributes a newsletter to 265 households. I have included a copy of our newsletter to give you a subjective sense of the residential community located near the UC operated Department of Energy laboratory.

JT-1

I will make these comments on behalf of my neighborhood in support of general legislative policies implicit and explicit in the California Environmental Quality Act (CEQA) to "provide the people of the state with clean air and water, enjoyment of aesthetic, natural, scenic, and historic environmental qualities, and freedom from excessive noise" (Public Resources Code, section 21001, subd. (b). Building on this proposition, it is fair to suggest, that an alternative location would have fewer environmental impacts, and that such alternative locations would and should be analyzed in an Environmental Impact Report (EIR). Instead, it is fair to say, the public has been short-changed as this exciting nanotechnology project is shoe-horned into a tight federally prescribed time-table when alternative locations exist, including alternative on-site locations. Instead, this 6-story building and central utility plant, together totalling 94,500 gsf, and accompanying road expansion, will be built in the section of the LBNL campus that is closest to a residential area and closest to several intercollegiate playing fields.

JT-2

To start, it is necessary to give greater detail of the context of the project and the environments that exist. Specifically, it is necessary to describe our neighborhood because there is very little information in the Draft Tiered Initial Study (DTIS) other than mentioning that we are located a mere 1/3 of a mile from the proposed project. We are not a cluster of a few houses here and there, as is frequently the case near the Department

1 of 10

of Energey (DOE) national laboratories, but a residential community comprising faculty, staff, and students of the University of California at Berkeley, employees of LBNL, as well as artists, entrepreneurs, attorneys, psychologists, medical doctors, writers, scientists, scholars, professors, people who have lived here all of their lives as well as young children. The neighborhood also includes properties that are listed on the State Historic Resources Inventory including houses designed by Bernard Maybeck (23 Panoramic Way), Julia Morgan (11 Mossroad Road; 9-15 Panoramic Way), Walter Steilberg (1 Panoramic Way; 29 Mosswood Road; 1 Orchard Lane; 4 Mosswood Lane; 29 Mosswood Road) and Ernest Coxhead (1 Canyon Road; 15 Canyon Road). As such, the residential environment is an amenity to the broader community and provides proximate housing for both UC Berkeley and LBNL campuses. The neighborhood is worthy of preserving not just for current residents but for future generations of California residents as well.

JT-3

In addition to the proximity of our neighborhood to the proposed location of the foundry, various athletic facilities are also nearby that were not mentioned in either the DTIS or in the supporting environmental documentation[1], hereafter referred to as the LRDP, as amended. These sport facilities include the (1) **Levine-Fricke Field**[2], which is the home field for Cal Intercollegiate Athletics Softball, (2) the **Witter Rugby Field**,[3] which is the home field for Cal Intercollegiate Athletics Rubgy Team, summer youth camps and intercollegiate football practice, as well as (3) the **Strawberry Canyon Recreation Area**[4]. These intercollegiate athletic fields and the adjacent recreational area are located even closer to the proposed Molecular Foundry than the Panoramic Hill neighborhood, which is to say closer than 1/3 of a mile.

JT-4

The description of the project location does not make clear that this project would be in the lower hill area of Strawberry Canyon relative to the bulk of the development in Strawberry Canyon uphill of the proposed site. Uphill of the proposed site is a cluster of LBNL development that includes the Genome Laboratory and the Hazardous Waste Storage Facility. A color photograph is enclosed to show the built environment next to the Botanical Garden and to illustrate the loss of the natural environmental in Strawberry Canyon. The proposed project brings development even closer to residential and recreational areas and compromises the quality of the natural environment even further.

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[1] Previous Environmental Impact Reports which were relied upon for tiering purposes include the following: (1) Lawrence Berkeley National Laboratory, *Site Development Plan EIR*, August 1987 (State Clearinghouse No. [1985112610). (2) Lawrence Berkeley National Laboratory, *Proposed Renewal of the Contract between the United States Department of Energy and the Regents of the University of California for Operation and Management of the Lawrence Berkeley National Laboratory*, Supplemental EIR, September 1992 (State Clearinghouse No. [19]91093068). (3) Lawrence Berkeley National Laboratory, *Proposed Renewal of the Contract between the United States Department of Energy and The Regents of the University of California for Operation and Management of the Lawrence Berkeley National Laboratory*, Supplemental EIR Addendum, September 1997 (State Clearinghouse No. 91093068).

[2] http://calbears.berkeley.edu/facilities/fields/levinefricke.asp

[3] http://calbears.berkeley.edu/facilities/fields/witter.asp

[4] http://calbears.berkeley.edu/facilities/fields/scra/default.asp

2 of 10

JT-4 Unfortunately available maps and figures do not clarify the relationship of the proposed foundry to existing structures, facilities, and land uses in the area. In Figure 2, Site Location Map (no page number), context is virtually eliminated. There is no indication of where the Botanical Garden is, for example, in relation to the proposed facility.

JT-5 Likewise, in the Supplemental EIR (1997), some figures either omit key detail, or are ambiguous, or are inaccurate. For example, the Panoramic Hill neighborhood is not drawn in, or represented on, Figure III-G-1 titled "UC Hill Area Land Use Planning Zones[1]." As a matter of fact, this figure contains numerous errors, the omission of our neighborhood being just one of them. Ironically, an area is labeled "Lower Neighborhood" on the northern side of Centennial Drive and downhill of the Botanical Garden that is not in fact a neighborhood but instead UC Berkeley land. Moreover, the intercollegiate playing fields are not included on the map even though they were constructed and were operating at the time of the Supplemental EIR. To include this outdated figure, taken from the Draft Environmental Impact Report of the LRDP (1990), is misleading on the one hand, but most importantly, inadequate as a document of existing conditions.

JT-6 Other figures lack topographical detail that would be helpful in visualizing the hillside site and anticipated foundry, utility plant, and roadway structures. For example, Figure 5 has numerous curves suggesting it is a topographical map but elevation data are nowhere provided. As a result it is impossible to anticipate whether or not there will be aesthetic impacts from this project.

JT-7 The DTIS concludes that the only impacts will be to vistas from private lands (p. 43), but that is not true. Public vistas will also be affected because the site is visible from Panoramic Way (near the residence of 299 Panoramic Way) and also from numerous points along the fire trail of the UCB's Ecological Study Area. As such the proposed location of the project conflicts with the public promise articulated in the 1987 LRDP to have an "East Strawberry Canyon perimeter 'buffer zone'".

JT-8 Neither is there information about the heights of the adjacent buildings. As such, it is difficult for the reader to anticipate the impact of the structure on the landscape vis a vis existing buildings and references. In fact, the adjacent buildings are no more than two stories which puts the proposed six story building in conflict with mitigation measures identified in the LRDP, as amended, which indicated that "(n)ew buildings will generally be low-rise construction." (Mitigation Measure III-F-1).

JT-9 No information is provided about the site in relation to the Hayward Fault and/or the Wildcat Canyon Fault. Since seismic events are a hazardous condition that interacts with other hazards, specific detail about the distance of the proposed foundry to these faults is necessary as a means of anticipating environmental impacts. The nearby Poultry

[1] Lawrence Berkeley National Laboratory, *Proposed Renewal of the Contract between the United States Department of Energy and The Regents of the University of California for Operation and Management of the Lawrence Berkeley National Laboratory*, Supplemental EIR Addendum, September 1997 (Clearinghouse No. 91093068).

JT-9 Husbandry Site, for example, is a mere 2,100 feet from the Hayward Fault and 1,800 feet from the Wildcat Canyon Fault.[6]

JT-10 The description of the project location also gives short shrift to UC Berkeley's Ecological Study Area, which is on the other side of Centennial Drive. This is an area designated as a "conservation land resource"[7] and was expanded for purposes of UC Berkeley's 1990 LRDP.[8]

JT-11 The project location is also inadequate in terms of describing the limited access to LBNL and to Strawberry Canyon in particular. Commuters to this facility will necessarily travel parts of the north-south corridor including either Gayley Road, or Piedmont Avenue, or depending on where the commuter originates, the heavily trafficked Belrose-Warring-Derby Corridor. This is because the LBNL campus, and the Strawberry Canyon Gate in particular, is located at what is essentially a dead-end in Berkeley such that there are peak-hour bottle-necks related to commute traffic to the federal laboratory.

JT-11A The LRDP, as amended, listed mitigation measures for Gayley Road but not for the more southern parts of the corridor, e.g. Belrose-Derby-Warring. For example, Mitigation Measure III-I-1c states as follows: "If and at such time as the level of service at intersections along the Gayley Road corridor reaches "D", a review of necessary improvements will be conducted with UC Berkeley." By neglecting the southern part of the north-south corridor, traffic impacts have been inadequately conceived and mitigation measures correspondingly lacking.

JT-11B The traffic data that is provided is inadequate by virtue of an overly vague description of methodology. For example, a traffic study was conducted in "November 2000, February 2002, and March 2002" but more specific dates were not provided in the DTIS and the study was not available in time to be reviewed for analysis and comment.

JT-11C To access LBNL Strawberry Canyon Gate by way of Centennial Drive, traffic from the southern perspective comes up Prospect Road to Canyon Road which is the point of entrance to our neighborhood. During the past few years, and since the Supplemental EIR (1997), traffic has increased to the point where exiting the neighborhood requires patience and caution. Moreover, the road at this point is very narrow requiring stop and go traffic. Already the conditions are hazardous and adding even one more vehicle that would not be there otherwise is, it would seem, irresponsible at worst and merely bad planning at best.

JT-12 Analysis of noise impacts from the proposed project ignores the acoustic-sensitivities of canyon environments. No where, that is to say, not one single supporting environmental document, mentions the acoustic complexities of sound measurement in canyons generally, or Strawberry Canyon in particular. As such, the assumptions of the noise

[6] University of California at Berkeley, Department of Planning, Design and Construction, *Environment, Health and Safety Facility Planning Study*, page 3-17, July 1, 1993.
[7] University of California at Berkeley, *Long Range Development Plan, 1990-2005*. page xii, 1990 LRDP.
[8] Ibid.

4 of 10

JT-12

analysis are flawed where, for example, it is stated in the DTIS that "(n)oise typically attenuates by about 6dBA for every doubling of distance from the source" (p. 83).

Because the variable or condition of the acoustically-sensitive canyon environment was ignored in the analysis, sampled noise measurements at three residences on Panoramic Hill are not valid. One of these residences, 365 Panoramic Way, is located on a site where sound would dissipate in contrast to other sites that are built into the hillside where sound would reverberate. Not surprisingly then, there is a difference of five decibels from the noise measurements of the "engine-only" condition at 365 Panoramic Way compared to the noise measurements for the same condition at 299 Panoramic Way.

A larger, more representative sample of acoustically-sensitive residences would have provided a more valid estimate of noise impacts. A sample of three residences is too small of a sample size. This is yet another problem with the noise analysis.

JT-12A

The noise analysis is also inadequate because it failed to adequately simulate construction noise. Grinding wood was used to generate noise at a level comparable to expected construction noise levels (p. 86), but, defeating the whole point, "accurate measurements could not be obtained at these locations because wood grinding noises were highly variable during short periods of time." Rather than finding an alternative noise source to simulate construction noise, data for two of the three sample residences were omitted and marked "N/A" and no further testing was done. In other words, in the only test of "noise at a level comparable to expected construction noise levels", only one residence was sampled, and that was at the residence that is least acoustically-sensitive to canyon noise.

JT-12B

Curiously too, all of the ambient noise levels for the selected residences are below the ambient noise levels for residences studied in the LRDP, as amended. This suggests that selection of data points (or residences) was not random. For example, in the Supplemental EIR (page III-K-2) ambient noise level at LaLoma and Ridge Road was 66 decibels, at 47/49 Canyon Road was 58 decibels, at 44 Mosswood Road was 52 decibels, and at the Botanical Garden was 61 decibels. Residential ambient noise levels measured in the DTIS were 45 dBA at 365 Panoramic Way, 45.8 dBA at 299 Panoramic Way, and 47 dBA at 45 Canyon Road. The variability in ambient noise levels at different locations in the hilly topography and the canyon environment suggests that a sample of three residences is inadequate for estimating noise impacts.

JT-12C

Although the DTIS does not describe construction noise levels in any detail, the *Draft Environmental Assessment for Construction and Operation of The Molecular Foundry* (DEA) does. Using data from the U.S. Environmental Protection Agency (USEPA), commercial construction noise is estimated to range from 78 decibels for foundation work to 90 decibels for pile drilling (Table 3: Typical Commercial Construction Noise Levels).

JT-12D

The DTIS acknowledges that noise impacts will be from construction-related noise but also from ongoing operations of the proposed Molecular Foundry. There will be an 8,000 gsf Central Utility Plant that will also generate noise. As such, because noise would be an

5 of 10

ongoing problem that would have impacts during the day as well as night, further environmental analysis is necessary.

In these ways, relevant and up to date descriptive detail and analysis was not provided in either the DTIS or the LRDP, as amended. Without this detail, it is impossible to adequately estimate environmental impacts from the proposed project, and without which, mitigation measures will be inadequate.

JT-13

In addition to these problems of description and analysis, public notice and information have also been inadequate. I might even add that in the past 12 years that I have commented as a member of the public on various developments at UC Berkeley and LBNL, this is the most deeply flawed public review process that I have ever witnessed.

JT-13A

At the start, the public was issued a "***Draft*** Tiered Initial Study and Proposed Mitigated Negative Declaration." I have reviewed the CEQA guidelines and see no mention of a "draft" initial study. Environmental impact reports are noticed to the public in draft form because after comments are received, environmental impact reports are modified where appropriate, and the final draft is sent back to the public. Distributing a "draft" of the initial study is a deviation from formal CEQA procedures that public agencies have a statutory obligation to follow. As a member of the public, I wonder too, when I will receive a copy, or notice, of the ***final*** Tiered Initial Study.

JT-13B

There were other problems with the public review process as well. The LBNL informed the public that the environmental review documents were available on the LBNL website (rf. Public Notice; rf. videotape of City Council meeting comment from Terry Powell, Community Relations Office), and although the DTIS was available on the website, previous EIRs relied upon for tiering purposes were not (rf. copy of website page). Nor were the prior EIRs mentioned, and accordingly, no information was available about where the prior EIRs might be located for study and review. This practice is in conflict with CEQA Guideline section 15152, subd. (e), which indicates that the public agency must inform the pubic of where the prior EIRs can be found and read.

JT-13C

There were other irregularities as well. For example, the website gave inaccurate and out-of-date information about the close of the comment period. The extension to the comment period was sent out by written notice by 1/17/03 (rf. Public Notice 1/17/03) but by 1/18/03, the website had not been updated (rf. copy of relevant page of website).

JT-14

These problems were compounded by an inaccurate statement made by Jim Krupnick, who is the Project Director for the Molecular Foundry (rf. videotape of 1/14/03 Berkeley City Council meeting), at the Berkeley City Council meeting which is broadcast live on Cable B-TV (Channel 25 & 78) and KPFB Radio 89.3 and rebroadcast the following Wednesday and Sunday. Mr. Krupnick stated that the environmental documentation was not complicated, and with the DTIS in hand, he waved it overhead saying that it could be read in an hour and a half. In fact, the DTIS is tiered on EIRs as mentioned in the preceding and is not simply the one document that he mentioned. In other words, more than 1-1/2 hours would be needed to review the previous EIRs.

JT-14A

Time is also needed to locate the previous EIRs. When I visited the City of Berkeley Public Library at the Central location on the 2nd floor at the reference section, I had expected to be able to find all of the previous EIRs. In fact, neither the original LRDP 1987 nor the Supplemental EIR from 1992 was available for review. Fortunately, I had copies of these documents in my personal library, but most of the public would not.

Another problem in the public review process was the failure of LBNL to provide a public forum to answer questions about the proposed project. The City of Berkeley City Council asked for such a meeting (rf. Summary of City Council Agenda), but none was provided.

JT-14B

The LBNL representative to the City Council was a Community Relations Officer, Terry Powell (rf. videotape of Berkeley City Council meeting January 14, 2003 where Ms. Powell describes herself as representing LBNL). What was needed was the environmental planning director or someone who could speak to CEQA-related issues.

At this City Council meeting, Ms. Powell stated that during the past 2-1/2 months, the LBNL had met with community members about the proposed project (rf. Videotape of City Council Meeting). In fact, she did not offer to make a presentation to the Panoramic Hill Association until January 13, 2003 (rf. attached e-mail dated 1/13/03) when at that time the close of the comment period was a mere 8 days later. After the public comment period was extended, she again made an offer to give a "15-30 minute" presentation at the General Meeting of our Association which was scheduled for February 2, 2003, which was a mere 3 days away from the close of the comment period.

In short, the UC-operated DOE laboratory deviated from normal procedures and rather than providing public presentations of CEQA-related information engaged in shameless lobbying for their proposed project. Moreover, by speaking to separate individuals and groups rather than at a publicly noticed meeting, there was no public accountability to what information was provided to the public. Finally, this divide and conquer approach is the opposite of the synergy the LBNL itself seeks in its research and collaborative product development work and was completely disabling to the community who wished to learn about this project.

JT-15

This project is important not only because it is a very large building in an environmentally sensitive context that extends beyond the canyon to outlying city-streets, not only because it is tiered upon previous EIRs which may or may not be adequate for purposes of the proposed project, but because the Molecular Foundry will enable a technology, i.e. nanotechnology, which is new and unfamiliar to most of the public.

JT-16

The project is challenging from an environmental perspective because it is a user facility, which means research is approved project by project, and as such, it is difficult to anticipate impacts from toxic, radioactive, and hazardous materials.[9] Given that the

[9] The problem with anticipating toxic emissions is exemplified in a footnote on page 3 of the DTIS:

project is in the Strawberry Creek watershed, and given that Strawberry Creek flows through the City of Berkeley and is sunshined on the Berkeley Central Campus and also at a few locations in the City of Berkeley, the project deserves more than a checklist-level of environmental review.

JT-17 The project also bares scrutiny because of reasonable concerns that it is a piecemeal approach to development, which is contrary to CEQA guidelines. The proposed Molecular Foundry would more properly be incorporated into a new LRDP rather than the old LRDP. It is therefore relevant that a Notice of Preparation to prepare an Environmental Impact Report for the Proposed Lawrence Berkeley National Laboratory **Long Range Development Plan (2002)** was issued as long ago as October 2, 2000. As of February 4, 2003 no EIR has been prepared. Absent postponing this project until the new LRDP is approved, the proposed project should at least have the benefit of a full EIR given that previous EIRs are based on out-of-date assumptions, data, and descriptive detail.

JT-17A LBNL justified including the proposed project in the existing LRDP on the basis of build-out data. The LBNL argued that 140,000 gsf would remain below proposed levels in the LRDP even after building the proposed foundry and that population would remain below estimates as well. This is a very narrow definition and superficial analysis of LRDP consistency. In fact, as stated previously, the LRDP, as amended, was inadequate in describing project location along several variables. As such, there have been unintended consequences and impacts from LBNL development that the existing LRDP did not anticipate.

JT-17B To use the outdated existing LRDP for a new project is one problem. Tiering on out-of-date documents underestimates overall growth-related issues, ignores new information including changes in the general background and setting. But the problem is compounded when a new LRDP is imminent. Under these circumstances, the environmental review process is made into little more than a bogus exercise.

JT-18 Moreover, development at LBNL and in the Hill Area of UC Berkeley has not been distributed evenly but instead has been concentrated in certain areas. One of these areas is near the Botanical Garden, where LBNL built the Genome Laboratory and the Hazardous Waste Storage Facility, and where UCB built a parking lot. The effect is to greatly destroy the natural environment as the enclosed color photo shows. Much of the natural environment has been destroyed and replaced with concrete, asphalt, and other human-made materials. The photo illustrates nothing less than the industrialization of Strawberry Canyon and the change in use from a semi-natural environment to an industrial park.

JT-18A Existing mitigation measures for biological resources have been terribly inadequate for past projects, and because the damage has not been assessed in a new LRDP, existing mitigation measures will also be inadequate for the proposed Molecular Foundry. For

"The need for a Point Source Emission Permit would be determined by the BAAQMD, based on the needs of individual researchers who would eventually occupy the Molecular Foundry lab spaces."

example, the proposed site for the Molecular Foundry "should be excluded from its final critical habitat listing"[10] according to a report from the U.S. Fish and Wildlife Service[11]

The Molecular Foundry, wherever it is located, will be one of five DOE facilities that together will constitute the National Nanotechnology Initiative (NNI). The other DOE facilities will be at Brookhaven, Oak Ridge, Argonne, and Los Alamos National Laboratories (Rf. website from the DOE Office of Basic Energy Sciences).

Nanotechnology is a growth industry and, according to the National Science and Technology Council (rf. enclosure on the National Nanotechnology Initiative), the NNI will lead to the "next industrial revolution." Since the proposed Molecular Foundry will be a nanoscience center, growth and expansion at the Molecular Foundry can reasonably be anticipated.

JT-19

As such, building a nanotechnology center at the proposed location, when the proposed project is already out-of-scale with other buildings in the particular area (known as the Materials and Chemistry Research Area) of the LBNL campus, inappropriate for the semi-natural and hillside environment of Strawberry Canyon, and within earshot of intercollegiate, recreational, and residential uses less than 1/3 of a mile away, violates procedural safeguards prescribed by CEQA. Since this will be the tallest building in the lower canyon, and since the proposed foundry represents an intensification of the built environment in the lower canyon, since seismic events are a hazardous condition that interacts with other hazards, and since previous EIRs are outmoded and out-of-date, a project specific EIR is required. The LRDP, as amended, is a general document, but this project has the capacity to cause singular impacts and therefore specific mitigations are required. In this case, the DOE laboratory has used the tiering process to avoid its obligation to analyze environmental impacts from a proposed project. At the very least, an EIR is necessary to evaluate the relative environmental merits of feasible alternative locations that could substantially lessen the adverse effects of the proposed project.

Thank you for consideration of these comments.

Sincerely,

Janice Thomas
President, Panoramic Hill Association

[10] DTIS, page 60.
[11] U.S. Fish and Wildlife Service, *Endangered and threatened wildlife and plants; final determination of critical habitat for the Alameda whipsnake (Masticophis lateralis euryxanthus)*, Federal Register Volume 65, Number 192, Octobre 3, 2000.

9 of 10

cc: Mayor and City Council Members of Berkeley
City Attorney's Office, Berkeley
California Resources Agency

enclosures: *Draft Tiered Initial Study (12/02)*
Edited videotape of Berkeley City Council Meeting (1/14/03)
Table III-K-1, Supplemental EIR (1997) Ambient Noise Levels
E-mail from Terry Powell to Janice Thomas (1/21/03)
E-mail from Terry Powell to Janice Thomas (1/13/03)
LBNL Community Relations website – Environmental Review Documents
Panoramic Hill Association Newsletter
Description of Witter Rugby Field from UCB website
Description of Strawberry Canyon Recreation Area from UCB website
Description of Levine-Fricke Field from UCB website
Figure III-G-1, Supplemental EIR (1997) Land Use
Color photo of LBNL development in Strawberry Canyon
Notice of Intent to Adopt Negative Declaration (12/6/02)
Notice of Intent to Adopt Negative Declaration (12/18/02)
Notice of Intent to Adopt Negative Declaration (1/17/03)
Summary of Berkeley City Council Meeting (1/14/03)
Notice of Preparation to prepare an EIR on the LRDP 2002 (10/2/00)
DOE Office of Basic Energy Sciences website (1/20/03)
National Science and Technology Council Supplement to 2001 Budget

10 of 10

Comment on Molecular Foundry

Subject: Comment on Molecular Foundry
Date: Tue, 04 Feb 2003 22:39:43 -0800
From: Mark Mcdonald <cathmark@earthlink.net>
To: jgphilliber@lbl.gov

Please accept my comments regarding the Molecular foundry--thank-you MM

Jeff Philiber
Environmental Planning Coordinator
Lawrence Berkeley National Lab
One Cyclotron Road ms90k0198
Berkeley Ca. 94720

To Mr. Philliber,

I am writing you to express my opposition to the proposed construction and operation of the Molecular Foundry near Strawberry Creek at the LBNL site. I believe the nature of this type of research will necessarily involve processes and materials that are more prudently located at a site with a standard buffer zone between the facility and the nearest neighbors. As stated in the report by B. Franke of IFSD, an independant scientest hired by the City of Berkeley several years ago to evaluate risks to the public from LBNL operations, there is no buffer zone at all at this site in sharp contrast to the vast majority of other Dept. of Energy facilities. This site is located in the fracture zone of the active Hayward faultline and no honest engineer can guarantee the integrity of this structure during a sizable seismic event . Firestorms have razed significant portions of the immediate local area several times in the last century and still pose a threat. I am not aware of any evacuation plan should a serious earthquake or fire occur. I cannot address more specific potential dangers as once again LBNL has refused to cooperate in a lawful environmental review process. I insist that there be a full Environmental Impact Report with a public hearing and an extended period for public comment several weeks past the hearing date. There have been many constuction projects in this area recently and all have been exempted from public review. The Bevatron demolition, the NorthEast Quadrant Project, the processing of mixed chemical rad waste in an experimental incinerator and now I understand the Cyclotron itself is being decommissioned. I demand an evaluation that examines the full impact including noise and traffic of all these projects combined.

MM 1

MM 2

MM 3

MM 4

I am also conerned that the scope of research for the Molecular foundry will be used to aid the developement of small nuclear weapons technology. The citizens of Berkeley have already stated their opposition to the developement and production of nuclear weapons by the overwhelming passage of the Nuclear Free Zone ordinance which prohibits the city from doing business with nuclear weapons contractors. The siting of a nuclear weapons related research facility amid a population strongly opposed to such is another example of the haughtiness and arrogance which is responsible for the deterioration of relations between LBNL and the surrounding municipalities.

MM 5

Mark McDonald

1815 Parker St.
Berkeley Ca 94703

1 of 1 2/5/03 2:08 PM

Re: PHA's public comments on the proposed Molecular Foundry project

Subject: Re: PHA's public comments on the proposed Molecular Foundry project
Date: Tue, 04 Feb 2003 23:18:57 -0500
From: SDinkC@aol.com
To: JGPhilliber@lbl.gov
CC: PanoramicHill@aol.com

SC 1

It is certainly confusing for the public to understand an expansion of one part of LBL while an other part, the 88 Inch Cyclotron, is being closed down. Could this project be housed in that building? Susan Cerny

1 of 1 2/5/03 2:08 PM

Subject: molecular foundry comments
Date: Wed, 05 Feb 2003 11:09:06 -0800
From: J M Sharp <itsa@dnai.com>
To: jgphilliber@lbl.gov

5 February 2003

Jeff Philliber, Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90 K
Berkeley CA 94720

Dear Mr Philliber:

Other than what you see here, we have decided *not* to comment on the draft environmental assessment documents associated with the construction and operation of LBNL's proposed Molecular Foundry.

JS 1

Why? From what we have seen, we don't believe that the Lab genuinely seeks comments from the public on this facility. Not only were the environmental documents issued just days before the Christmas holidays, but there have been *no* public scoping sessions on the project and *no* public meetings. Nor has there been any public discussion of any risks posed by the introduction of nanosciences "exploration and study" into Strawberry Canyon.

The Molecular Foundry looks to us like yet another example of how UC Berkeley and the Lab routinely subordinate rational planning to construction opportunism. Last year, we saw the 1990 Long Range Development Plan inflated to accommodate 325,000 gross square feet of new projects on UCB's Northeast Quadrant by 2005/2006. Back in October 2000, we were promised LBNL's Long Range Development Plan (2002), but the Molecular Foundry evidently arrived first.

It is clear that this project has been fast-tracked for the earliest-possible approval by the UC Regents. We don't believe that anything we would say or write at this time will affect this process.

Our cynicism is reinforced by the majority of the Berkeley City Council who, at their regular meeting on 14 January, decided not to ask LBNL to prepare a full Environmental Impact Report on the project. By our count, two Lab pensioners were among those Councilmembers who voted against an EIR.

Please keep us informed if you learn of any additional opportunities for public input or reaction to the Molecular Foundry juggernaut.

Sincerely,

James M Sharp Daniella Thompson

2663 Le Conte Avenue
Berkeley CA 94709

Jeff Philliber, Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
1 Cyclotron Road
MS 90K0198
Berkeley, CA 94720

February 4, 2003

URGENT

RE: Comments on the Initial Study and Proposed Mitigated Negative Declaration for Constructions and Operations of the Molecular Foundry at LBNL

Dear Mr. Philliber:

SW-1 The Initial Study and Mitigated Negative Declaration for the Construction and Operation of the Molecular Foundry do not adequately address the many potential geologic hazards associated with the siting of the Molecular Foundry in an area fractured by multiple earthquake faults which criss-cross LBNL between the active Hayward fault to the west and Wildcat fault/splay to the east and which is already contaminated with Tritium. (See attachment 1.)

SW-2 Furthermore, the multiple potential hazards from the operations of the Molecular Foundry have not been analyzed at all. These include emissions/releases from radioactive sources, radioactive materials, hazardous materials, biological agents and microorganisms (bacteria, viruses, etc.). These elements, plus the very high earthquake proneness on the Hayward fault and other Bay Area earthquake faults, a high-risk fire zone, and a densely populated urban area make for a lethal combination.

SW-3 The Foundry's nanotechnology is closely tied with nuclear weapons research and bio-warfare and is likely to be used by the DOD for enhanced weapons of mass destruction, a purpose we cannot support. More detail is needed on exactly what sort of projects will be worked on at the Foundry. At the very least no construction should commence until an Environmental Impact Report and an Environmental Impact Statement have been completed and submitted to the public for review and comment at a formal public hearing.

SW-4 It is also most important to consider the cumulative impacts of this project along with all the other LBNL current and future project. For example: the decommissioning and decontamination of the National Tritium Labeling Facility which has not yet been completed, the deconstruction, decommissioning and decontamination of the Bevatron , Hilac and the 88 inch Accelerator as well as debris hauling from these areas.

SW-5 Additionally, we are opposed to the building of the Foundry near Chicken Creek, a tributary of Strawberry Creek, which runs through the City of Berkeley. There is far too much development and environmental contamination already in the Canyon, a landslide area with earthquake faults as well as a critical fire area.

SW-6 These projects, together with the UC's northeast quadrant (NEQSS) demolition and construction will surely have a huge negative impact on surrounding neighborhoods over and above the obvious contribution to serious traffic congestion in the area for years to come.

SW-7 Given the poor record of LBNL (and the other UC-managed labs) in managing both funds and the handling/storage of hazardous and radioactive waste and materials, we request that the operation and funds proposed for LBNL's Molecular Foundry be consolidated with one of the other sites proposed by DOE: Brookhaven, Argonne, Oakridge, or Los Alamos, all located on more stable ground.

SW-8 In conclusion, we are asking you to honor the Berkeley City Council's request that a public hearing be held on the proposed project in order for all the concerned residents to have the opportunity to directly hear from LBNL/DOE about the project and thus be better informed and better able to comment on this proposal. (See attachment 2.)

Sincerely,

Pamela Sihvola,
Co-chair/CMTW
P.O. Box 9646
Berkeley, CA 94709

L.A.Wood
City of Berkeley's
Environmental Commission*
1803 Bonita Avenue
Berkeley, CA 94709
*For identification only

Addendum to Comments on Molecular Foundry 2-05-03

SW-9 The reason we have stressed the Tritium contamination at LBNL is due to the fact the National Tritium Labeling Facility (NTLF) was a national User (commercial) Facility such as is proposed for the Molecular Foundry. We have learned that User Facilities are plagued with too many uncertainties. If proper EIR/EIS environmental documents had been prepared in the early 1980s and our community offered an opportunity to comment on the NTLF project, the City of Berkeley and residential neighbors bordering LBNL could have been spared so much concern and contamination. Currently the NTLF operations have ceased but the Tritium contamination in the environment will remain for 125 years.

SW-10 Additionally, the USER component is extended to the Advance Light Source (ALS) which is a Synchrotron Radiation source accelerator. ALS injector produces stray neutrons (and gamma radiation?) during its operation. However, no proper assessment was prepared to understand how the Molecular Foundry activities will increase the operations at ALS and how this will further impact the residents on the northern slope of the Panoramic Hill (i.e. along Canyon Road, Mosswood, Arden and Panoramic Way) as well as visitors at the Haas Clubhouse and swimming pools facing ALS. All these issues must be addressed in a proper EIR/EIS process.

Public Comment on the Molecular Foundry

Subject: Public Comment on the Molecular Foundry
Date: Wed, 5 Feb 2003 12:02:13 -0800 (PST)
From: Leuren Moret <leurenmoret@yahoo.com>
To: jgphilliber@lbl.gov
CC: leurenmoret@yahoo.com

Dear Mr. Philliber - I would like this to be included in the Public Comment for the planned Molecular Foundry. It is strange that my computer suddenly began crashing when I tried to email this to you before the noon deadline.

Leuren Moret (510) 845-3139

February 5, 2003

Jeff Philliber
Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
1 Cyclotron Road MS 90K0196
Berkeley, CA 94720
<jgphilliber@lbl.gov>

RE: Proposed Molecular Foundry For the Purpose of Nanotechnology Research at the
Lawrence Berkeley Lab, Funded by the Department of Energy

Dear Mr. Philliber,

Out of concern for the Berkeley Community, and for citizens nationwide who are funding this research project with their tax dollars, I am making public comment on this proposed project. I am writing this as a City of Berkeley Environmental Commissioner, as a former employee of the Lawrence Berkeley and Livermore National Laboratories, and as a mother.

I have been in your house. I know the culture of the labs and of the Department of Energy and I have observed firsthand the misapplication of science resulting in tremendous harm to the global population from the nuclear project and the global contamination which began with nuclear bombs detonated in 1945 (http://www.radiation.org).

LM 1

This research will be used for military applications and is intended for military projects. During a City of Berkeley Environmental Commission meeting on January 9, 2002, Project Director Jum Krupnick and Project Manager Joe Harkins answered questions about this project but refused to do a presentation. When asked where other Molecular Foundaries are planned as part of this new development focus by DOE, it was stated that other locations were Los Alamos National Lab, Oak Ridge National Lab, Brookhaven National Lab, and Argonne Laboratories. The link to the military is without question. They failed to mention that one is also planned for Livermore National Lab.

It is very suspicious that the Department of Energy and the Department of Defense are suddenly interested

1 of 3 2/5/03 2:08 PM

Public Comment on the Molecular Foundry

in funding an extensive nationwide nanotechnology project at the National Labs. Nanotechnology has already been of global interest for two decades in academic and commercial sectors.

LM 1A

The misapplication of nanotechnology research to be conducted at the Molecular Foundary has the same potential, perhaps even greater, for further harming life on earth. The public is entitled to know what this project is about. We have had no information provided or been informed about it. This is a $200 million project with an intended annual budget of nearly $20 million.

I am asking for answers in writing to the following questions:

LM-2 1. Will any of the work conducted at the Molecular Foundry or planned applications be classified?

3 2. Will any ionizing radiation or devices using ionizing radiation be used or worked on?

4 3. Will any positively or negatively pressurized laboratories be built for or at the Molecular Foundry?

5 4. Will any weapons or terrorist/antiterrorist related work be done at the Molecular Foundry?

6 5. Will any research and development technology using living organisms, parasites, bacteria, mice be conducted at the Molecular Foundry?

LM 7

The Los Alamos National Lab, Livermore National Lab, Lawrence Berkeley National Lab, and the University of California are now under extensive investigation by the US Congress, the Government Accounting Office, and the Department of Energy. This week the Department of Energy itself is now coming under investigation for mismanagement of the National Labs.

Not only has the Lawrence Berkeley Lab been involved in two major cases of international science fraud in the past three or four years, but it was rife with theft, drug abuse/use, misappropriation of public funds and severe mismanagement when I was employed there at the end of the 1970's during five years as an employee. Nothing has changed, in fact, it has gotten worse with the loss of nuclear weapons funding due to pressure from citizens to establish Berkeley as a nuclear free zone.

LM 8

The competence of scientists working at LBNL is in question. The EPA delisting process at the National Tritium Labeling Facility at LBNL has revealed that the oxidation apparatus for burning tritiated mixed waste was ripped off from a commercial company. Both the EPA and LBNL falsely claimed and justified the burning of 200 gallons of mixed waste - releasing nearly 100 Curies or more of tritium into the environment - was a serious and innovative "study". Not only was it a ripoff, but it was modified at LBNL

2 of 3

2/5/03 2:08 PM

from a closed system - where no radioactive or chemical waste was released to the environment - to a chronic and harmful release of radiation adding to the environmental and biological burden already there.

LBNL was a highly respected scientific institution at one time. Today it is an example of professional welfare for scientists and former military "double-dippers" in the DOE apparatus who can't "make it" elsewhere.

LM 9

During the past two years as a citizen expressing concerns to the Community Environmental Advisory Commission, and for the past year as a Commissioner, I have observed incomprehensive abuses by LBNL of city government, citizens and Commissioners by LBNL "bulldogs". Physical abuse and mobbing of those who oppose LBNL is rife.

Gordon Wozniak, a newly retired LBNL scientist and former Environmental Commission Chair now serves on the City Council and votes on all issues concerning LBNL, IN THEIR FAVOR. Last year he kicked a chair into the back of a woman opposing LBNL who was attending a public DOE meeting and injured her. Nothing happened.

Elmer Grossman, Medical Doctor, retired UC Emeritus professor, and former Environmental Commission Chair, has served as a spokesman and "cheerleader" in the media and scientific publications for the NTLF. He has also falsely represented the significance of "the precious research" conducted at the NTLF. He has also used intimidation and violence against citizens visiting the commission with complaints about LBNL.

The City government has been compromised by backroom deals and pressure from LBNL, failing to inform the City of projects in a timely manner, false claims and faulty information, and infiltration of City Government and City Commissions by persons acting on behalf of LBNL interests. LBNL is a culture of lies.

The history of LBNL in the community of Berkeley is scandalous. The citizens and members of the City Government have good reason to demand answers and a public presentation with substantial information about what is planned in the future at the Lawrence Berkeley Lab. The problems at this institution start at the top.

Sincerely yours,

Lauren Moret
City of Berkeley Environmental Commissioner
Past President, Association for Women Geoscientists

Subject: Comments on plan for Molecular Foundary
Date: Thu, 06 Feb 2003 00:07:52 -0800
From: Robert Breuer <rbreuer@pacbell.net>
To: jgphilliber@lbl.gov

February 5, 2003

Jeff Philliber, Environmental Planning Coordinator
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90 K
Berkeley, CA 94720

Dear Mr. Philliber:

I am a resident of the Panoramic Hill neighborhood. I live a quarter mile from your proposed Molecular Foundry. I have serious problems with your plans.

RB-1 You really must address the flow traffic up to the Strawberry Canyon facilities of LBNL. Huge amounts of cars, buses and trucks drive up to access the mouth of the canyon at the foot of Centennial where it begins just east of Memorial Stadium. To reach that point they traverse narrow streets along Canyon, Stadium Rim Road and Gayley Road. The traffic flow concerns me greatly and is something which has never been addressed over the years of considerable new building on the hill. As a hill resident I have observed ever greater traffic increases along the route through these years. The prospect of yet another substantial building, the highest building in the lower canyon area, along with an increased workforce will tax the traffic problem still further. As the built environment is gradually dominating the landscape, the built environment in Strawberry Canyon is rapidly taking over the natural environment. And with it so is the growth and constant flow of traffic along completely inadequate access streets.
For this and other reasons I am firmly against any further development of new facilities on the hill.

A significant mitigation regarding traffic is the least you ought to consider. Let me point something out specifically in this regard. I have attached a PDF file with a map of the campus and city access roads around Memorial Stadium at the canyon's mouth. Please note that vehicles driving up the hill via Prospect to Canyon, heading for the turn east onto Centennial, must pass an ancient and ridiculously narrow and dangerous bottleneck where Stadium Rim Way meets Canyon. I propose changing the route ever so slightly, inexpensively and very simply to pass instead through an already paved, divided and graded area of the upper south parking lot of the stadium. My map shows the proposed route, but an on-the-spot inspection would make it ever so obvious how this change could provide an improvement to traffic flow, if planners would just take a look. (I will be sending you a hard copy of my map by mail tomorrow.) Beyond improved traffic flow and safety, the added benefit of such a change would be a separation of UC/LBNL bound traffic from neighborhood traffic accessing only Panoramic Way and the neighborhood of some 200 homes on Panoramic Hill, the only Strawberry Canyon residential area. Each day significant amounts of lost traffic trying to find its way to canyon Lab facilities mistakenly drive up Panoramic Way. This often includes school buses heading for the Lawrence Hall of Science and large delivery trucks!

RB-2 Finally, let me point out a comparison. I work in Livermore. The LLNL is a huge flatland facility. Flat land is far cheaper to build on, far easier to access, easier to secure and to maintain. Surely LBNL could find flatland property, some of which is already owned by UC in Berkeley. The security, safety from fire and earthquake disruption and traffic access would be a solution far superior to your continued building in the canyon area above the campus. By building at the site which you have designated for the foundry, the canyon will only be further degraded. Whatever natural habitat there may be left will be further displaced by the totally incompatible 6-story structure you propose to build there.

RB-3 Mr. Philliber, I think that by law and by reason a full Environmental Impact Report (EIR) needs to be done on this project. At the very least alternatives will then need to be considered. Short of that, and at an absolute minimum, I hope that your planners will work with the University and the City to study the

improvement of road access to the lab areas on the hill in the canyon area.

As a neighbor and professional designer, I offer my help to consider ways to make find the best home for this project.

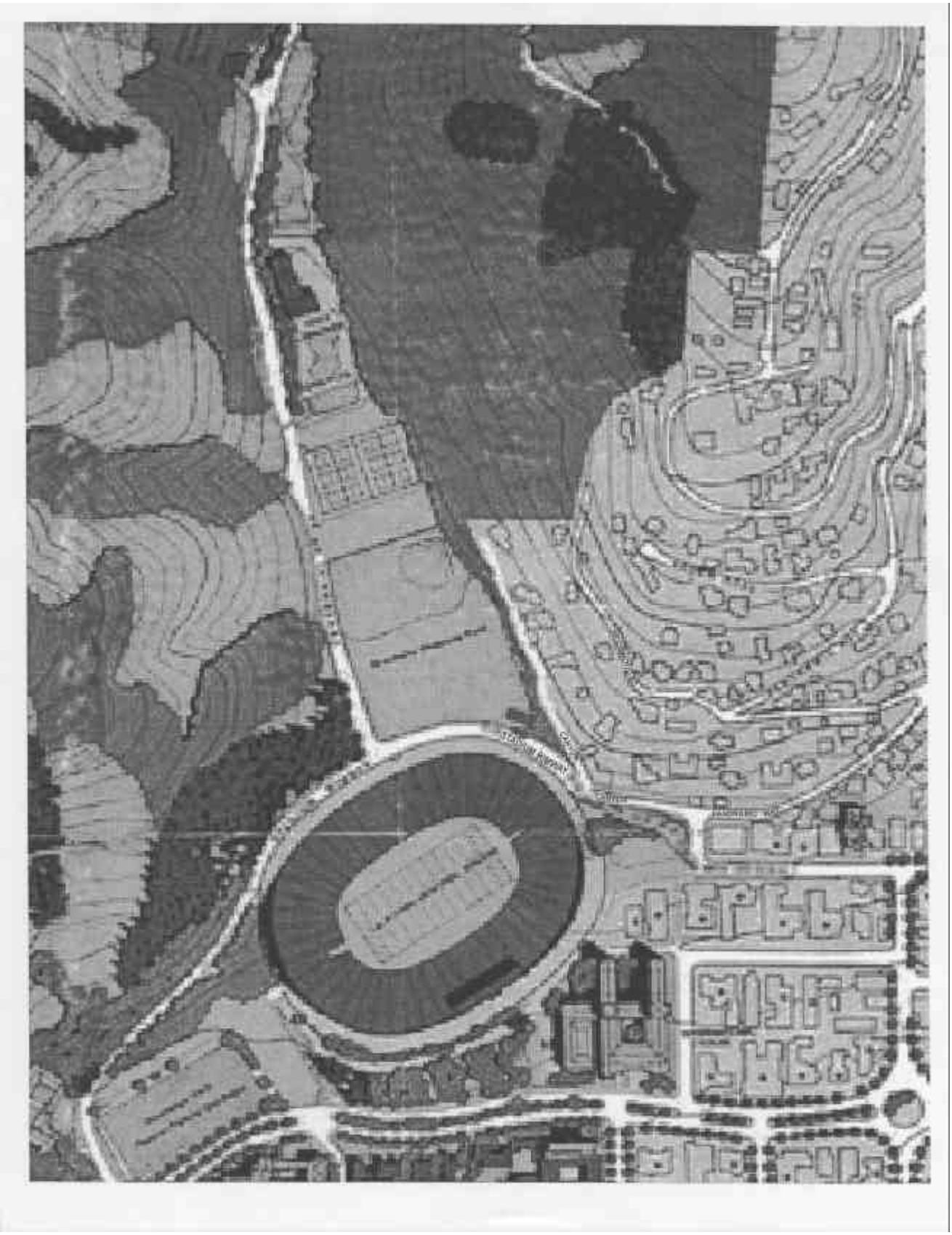
Thanks for your consideration of these comments.

Sincerely yours,

Robert F. Breuer
29 Mosswood Road
Berkeley CA 94704

Phone: 510.540.5880
Email: rbreuer@pacbell.net

HillAccess.pdf	**Name:** HillAccess.pdf **Type:** Acrobat (application/pdf) **Encoding:** base64 **Download Status:** Not downloaded with message



RESPONSES TO COMMENTS

#	Com-ment #	Letter (Author)	Response
1	RWQCB-1	Regional Water Quality Control Board	Comment noted. Text addition in the final IS/MND has been made per RWQCB comment to reflect overall ratio of pervious vs. impervious surface area in the watershed and to provide more information regarding the cumulative context. Although this shows a higher ratio of impervious-to-pervious surface area to which this project would add, the proportion of overall impervious surface area is nevertheless marginal compared to basin-wide pervious surface area. The project's incremental impact would therefore continue to be less-than-significant and would not "interfere substantially with groundwater recharge." Neither is it expected that there will be substantial growth affecting the pervious/impervious ratio in this watershed in the foreseeable future, even considering the cumulative projects in the area identified in the IS/MND.
2	RWQCB-2	Regional Water Quality Control Board	Stormwater impacts from the proposed project are identified in the IS/MND as less-than-significant in both anticipated quantity and quality of runoff. As reported in the IS/MND analysis, the increased volume of stormwater due to project-related pervious surfaces would not exceed system capacity or result in flooding. In addition, implementation of the project as proposed is expected to conform with the existing storm water pollution prevention program (SWPPP) and the NPDES permit, and would not "substantially degrade surface or groundwater quality." Nevertheless, LBNL will carry forward the RWQCB's suggestion that project runoff be treated to the MEP standard by considering further incorporation of such strategies as runoff storage, reclamation, and reuse into the detailed design of the project as it enters into its final design stage.
3	RWQCB-3	Regional Water Quality Control Board	The Strawberry Creek detention basin is a passive system that regulates the flow of water downstream in Strawberry Creek. It is neither designed nor intended as a treatment facility. It is outside the control and property management area of LBNL.
4	RWQCB-4	Regional Water Quality Control Board	Refer to response to comment RWQCB-2, above. Nevertheless, LBNL will carry forward the RWQCB's suggestion that project runoff from roofs and paved surfaces should be treated with Best Management Practices (BMPs) by considering further incorporation of such strategies into the detailed design of the project as it enters into its final design stage. Due to the steep slopes and erosion potential downslope of the project site, however, overland discharge and pervious ground-surface treatments methods are not necessarily BMPs for this project.
5	RWQCB-5	Regional Water Quality Control Board	Comment noted. LBNL shares RWQCB's view that landscape-based stormwater treatment measures to manage project-generated stormwater runoff, such as biofilters and vegetated swales, are desirable. LBNL will seek practical opportunities to incorporate such measures into the detailed design of the project as it enters into its final design stage. See also responses to comments RWQCB-2, and -4, above.
6	RWQCB-6	Regional Water Quality Control Board	Comment noted. LBNL has obtained a copy of "Start at the Source" and has disseminated this to the project architects and engineers. As the proposed project is refined during the final design stage, LBNL will seek opportunities to incorporate applicable values and recommendations from this text into the detailed design of the project.
7	RWQC	Regional Water	Comment noted. LBNL also finds the use of inlet filters to be problematic and does not

#	Com-ment #	Letter (Author)	Response
	B-7	Quality Control Board	intend to use such devices as part of the proposed project.
8	EBMUD-1	East Bay Municipal Utility District	Comment noted. LBNL thanks EBMUD for this additional information with which to augment the Public Utilities setting section. This additional information is incorporated into the Final IS/MND.
9	EBMUD-2	East Bay Municipal Utility District	Comment noted. Please refer to response to RWQCB-2 and –5.
10	EBMUD-3	East Bay Municipal Utility District	Comment noted. New language is incorporated in the final IS/MND to address this concern.
11	EBMUD-4	East Bay Municipal Utility District	Comment noted. Design details, such as those identified by the commentor (e.g., detailed designs of landscape irrigation plans), are generally completed during the final design phase of the proposed project. However, LBNL intends that those final design details will include the most efficient irrigation systems practicable and should meet the goals identified in the EBMUD comment.
12	EBMUD-5	East Bay Municipal Utility District	Comment noted. LBNL has revised the sentence to place additional emphasis on water-saving criteria.
13	EBMUD-6	East Bay Municipal Utility District	Comment noted. A sentence has been added to the text of the Final IS/MND per EBMUD's suggestion.
14	EBMUD-7	East Bay Municipal Utility District	Landscape and irrigation details would be developed during the final design phase of the proposed project. LBNL will consider sub-metering of landscape irrigation at the time such details are fully developed.
15	EBMUD-8	East Bay Municipal Utility District	Landscape and irrigation details would be developed during the final design phase of the proposed project. LBNL will provide such information upon EBMUD's request at the time such details are fully developed.
16	EBMUD-9	East Bay Municipal Utility District	Comment noted. LBNL fully intends to comply with all applicable laws and regulations, including the State Model Water Efficient Landscape Ordinance AB 325.
17	EBMUD-10	East Bay Municipal Utility District	Comment noted. Please refer to EBMUD-4 response.
18	EBMUD-11	East Bay Municipal Utility District	Comment noted. LBNL thanks the EBMUD for identifying the availability of this service.
19	EBMU	East Bay	Comment noted. Building and plumbing design details would be developed during the

#	Com-ment #	Letter (Author)	Response
	D-12	Municipal Utility District	final design phase of the proposed project. LBNL will use that opportunity to continue to devise ways in which water-efficient appliances and technology can be practicably applied to this project.
20	EBMU D-13	East Bay Municipal Utility District	Comment noted. Please refer to responses to comments EBMUD-4 and -9.
21	EBMU D-14	East Bay Municipal Utility District	Comment noted. Please refer to responses to comments EBMUD -4, -5, -7, -9, and -12. LBNL agrees with EBMUD that water conservation and waste minimization are an important part of this project and in planning in general at Berkeley Lab.
22	EBMU D-15	East Bay Municipal Utility District	Per the commentor's suggestions, the Final IS/MND text has been revised to reflect this more detailed information: All LBNL sanitary sewage runs through the City of Berkeley's basin No. 17. The City Department of Public Works has confirmed that there is considerable remaining average and peak wet weather capacity in this basin. The proposed project would most likely be directed into subbasin #17-003; this subbasin has more than adequate average and peak wet weather capacity to accommodate the estimated 1,200 gpd sanitary sewage flows from the proposed project. The main concern with sewer flow in this subbasin and region wide in the EBMUD system is the infiltration and inflow of stormwater into the sanitary sewer system due to the poor condition of aging sewer pipes (known as "infiltration / inflow" or "I/I"). LBNL has aggressively acted to address infiltration / inflow problems in its own system and has made dramatic improvements in recent years. In addition, an aggressive plumbing maintenance and upgrade effort has been undertaken during the past 15 years by LBNL, along with installation of water saving devices and systems, to substantially lower average sewer flows as well. The savings realized by these on-going efforts has reduced both peak wet weather as well as average sewer flows by well over half. Moreover, LBNL's peak wet weather infiltration / inflow rate is less than half of that of the City of Berkeley's and it is approximately only ten-percent of that found in EBMUD's district on average. LBNL continues to seek ways in which to reduce both water consumption and sewage generation. In 1984, LBNL's allocated sewer flow was approximately 200,000 gallons per day (gpd). Due to historic infiltration / inflow, that amount was much higher during peak wet weather events. In recent years, due to the aforementioned efforts, that average annual sewer flow has been reduced by approximately 100,000 gpd, and by even much greater amounts during wet weather. The proposed Molecular Foundry is expected to generate less than 1,200 gpd of sewage. This incremental amount falls well below what was allocated to LBNL previous to its sewer upgrade projects. It is also consistent with the 1987 LRDP EIR, as amended, which anticipated, analyzed, and found less-than-significant impacts for buildout levels of sanitary sewage at much higher than current levels, even with inclusion of the proposed project. Moreover, because the sewer lines installed for the Molecular Foundry would be brand new, state-of-the-art, and virtually free of stormwater infiltration, the contribution of the proposed project would be incremental in both dry and wet weather and would not contribute to the problem of I/I surplus flows during peak wet weather events.

#	Com-ment #	Letter (Author)	Response
			Through the University of California, LBNL currently pays the City of Berkeley for assessed sewer services. In addition, the University has contributed to the City of Berkeley's sewer upgrade program. This program is intended to increase wet weather flow capacity and decrease infiltration / inflow conditions.
23	EBMUD-16	East Bay Municipal Utility District	Refer to response to comment EBMUD-15.
24	NAH-1	Nabil Al-Hadithy, City of Berkeley	There would be nothing especially unique or novel about the equipment or laboratories installed in the Molecular Foundry building. Although the research would be "cutting edge," the processes, equipment, and materials would be similar to that which already exists on many campuses (including in UCB and LBNL) and in laboratories throughout the world. Equipment would typically include conventional laboratory hardware such as advanced optical microscopes and other detection equipment, glassware, benchtop-scale tools and instruments, chromotography equipment, refrigerators, and centrifuges. Equipment would *not* include extraordinary and/or unconventional items of concern such as particle accelerators. To accommodate the commentor's request, LBNL scientific and project management staff involved with the proposed project attended public meetings (please see response to comment JT-13) held by the City of Berkeley Staff to discuss the science and technology involved in nanoscience research.
25	NAH-2	Nabil Al-Hadithy, City of Berkeley	The project does not include the storage or use of radioactive materials at the Molecular Foundry building. Consequently, no radionuclides would be emitted as a result of proposed project operations.
26	NAH-3	Nabil Al-Hadithy, City of Berkeley	LBNL has sent out review copies of the Molecular Foundry environmental documents to BAAQMD, EPA Region 9's Radiation and Indoor Air section, Cal EPA's Dept. of Toxic Substances Control, and the State Clearinghouse for distribution to all appropriate state agencies. Again, because there are no plans to use radioactive materials in the Molecular Foundry, and no radionuclides would be emitted, no special consultations were conducted with these agencies regarding radiation issues.
27	NAH-4	Nabil Al-Hadithy, City of Berkeley	A general overview of research activities and aims is given in IS/MND pages 9 and 15. Also, please refer to the response to comment NAH-1, above. Again, research activities taking place in the Molecular Foundry labs would be similar to conventional benchtop-scale research taking place in other benchtop-scale labs throughout LBNL. There are no special or extraordinary safety concerns associated with this type of laboratory work. As stated on IS/MND pages 2, 3, 9, and 15, what would make the Molecular Foundry unique would be its physical concentration of researchers and world-wide users from a broad range of scientific fields who would collaboratively focus on nanoscience research. Furthermore, the Molecular Foundry would be in close proximity to other LBNL resources such as National Center for Electron Microscopy, the Advanced Light Source, and LBNL's world-class computing facilities.
28	NAH-5	Nabil Al-Hadithy, City	See pages 104 - 108 of the Molecular Foundry IS/MND for further discussion of cumulative impacts analysis and methodology. The analyses have been conducted using

#	Com-ment #	Letter (Author)	Response
		of Berkeley	information regarding the types and amounts of chemicals it is anticipated would be used at the Molecular Foundry. This document has been sent to federal, state, regional, and local agencies, including the agencies the commentor cited. These agencies have an opportunity to review and comment on the IS/MND conclusions.
29	NAH-6	Nabil Al-Hadithy, City of Berkeley	See page 57-60 of the Molecular Foundry IS/MND for a discussion of potential hazardous and toxic emissions. Also refer to Appendix E of this IS/MND. Chemical emissions are expected to be so low as to fall far below any significance thresholds maintained by the Bay Area Air Quality Management District, and the Molecular Foundry would fall below regulation by this same agency. The Hazard Analysis Report is not complete at this time, as it is intended to be a document that takes into account the sorts of design details and refinements associated with completion of the final design phase of the project. As mentioned in the IS/MND, the hazard analysis report will be completed and available for review when project final design is completed, currently anticipated to be in November 2003. LBNL reports its chemical inventory to the City on a quarterly basis, as required by federal and state regulations. When the Molecular Foundry building became completed and operational, the chemicals associated with that building would be reported as well. This is in conformance with Sara Title III, which requires that existing or actual inventories of chemicals be reported.
30	NAH-7	Nabil Al-Hadithy, City of Berkeley	The quantities of acutely hazardous materials at LBNL are below state thresholds (CalARP) that require a Risk Management Plan (RMP).
31	NAH-8	Nabil Al-Hadithy, City of Berkeley	See pages 52 and 56 of the Molecular Foundry IS/MND for discussion of construction and diesel emissions. The proposed diesel standby generator will meet the Bay Area Air Quality Management District (BAAQMD)'s emission control standards and will undergo the process for a permit to operate. Also in compliance with BAAQMD requirements, the operation of the standby generator is expected to be limited to a few hours per month for testing purposes. Particulate matter emissions during construction of the Molecular Foundry building are subject to control under BAAQMD visible emissions standards as well as under regulations governing criteria pollutants. Berkeley Lab requires all contractors to minimize such emissions from construction-related activities following the BAAQMD's recommended measures for such activities as adopted in LBNL's LRDP EIR. Particulate matter concentrations would be further minimized by the fact that the nearest residential areas are approximately one-third of a mile distant.
32	NAH-9	Nabil Al-Hadithy, City of Berkeley	Again, there are currently no plans to use radioactive materials in the Molecular Foundry building. See pages 57 – 60 of the Molecular Foundry IS/MND for analysis of toxic and hazardous air emissions. Estimates by researchers of the types and amounts of chemicals expected to be used in the Molecular Foundry were used to estimate stack emissions. Conservative estimates of stack emissions indicate that they will remain at levels below BAAQMD permitting thresholds, which are based on conservative health risk assumptions. (This

#	Com-ment #	Letter (Author)	Response
			evaluation will be refined and performed again prior to actual construction to confirm that refined project data continues to support the conclusion that the project would not exceed or threaten any BAAQMD permitting thresholds.)
33	NAH-10	Nabil Al-Hadithy, City of Berkeley	Final design of the Molecular Foundry building is planned for 2003 and construction is planned to start in January 2004. At the end of the design phase, additional details about laboratory activities will be available for a final Toxic Air Contaminant review. LBNL expects these to confirm preliminary calculations that the levels of toxic air contaminants fall below BAAQMD permit levels.
34	SK-1	Sherry M. Kelly, City of Berkeley	LBNL initially circulated the IS/MND for a 35-day comment period (CEQA generally requires a 30-day comment period), from December 10, 2002 to January 13, 2003. In order to allow additional time for public meetings and information dissemination requested by the City of Berkeley, LBNL granted and provided public notice of two comment period extensions: the first extension was to end on January 21, 2003; the second extension ended on February 5, 2003. In total, the IS/MND comment period extended approximately 58 days.
35	AS-1	Ann Reid Slaby	Please refer to the response to comment SW-3, below, for the request for an EIR. Regarding fire risk, please refer to response to comment SW-2, below; regarding geologic and soil hazards, please refer to response to comment SW-1, below.
36	AS-2	Ann Reid Slaby	The equipment, chemicals, and laboratories used in the nanoscientific work in the Molecular Foundry would be relatively conventional and of the type commonly found in laboratories throughout LBNL. The IS/MND considered reasonably foreseeable environmental impacts of the project, and found that impacts would be less than significant. CEQA does not require that highly speculative worst-case scenarios be evaluated. Regarding potential impacts to users of recreational areas, please refer to response to comment JT-3, below.
37	AS-3	Ann Reid Slaby	Please refer to response to comment SW-2, below.
38	GB-1	Gene Bernardi	Comment noted. Please refer to response to comment SW-3, below.
39	GB-2	Gene Bernardi	The types of research that would be conducted at the Molecular Foundry are discussed in the IS/MND at pages 9 and 15.
40	GB-3	Gene Bernardi	Cumulative impacts are discussed in the IS/MND at pages 104-108. Impacts from NEQSS were considered as part of the analysis. Berkeley Lab has not proposed the deconstruction, decommissioning, and decontamination of the Bevatron, Hilac, or 88-inch accelerator, and these actions therefore were not included in the cumulative impacts analysis. There are no reasonably foreseeable significant effects from NTLF closure operations, and none that would act in concert with the proposed Molecular Foundry and other projects to create significant cumulative impacts.
41	GB-4	Gene Bernardi	Regarding earthquakes and landsliding hazards, please refer to response to comment SW-1, below. Regarding fire risk, please refer to response to comment SW-2, below.
42	GB-5	Gene Bernardi	Regarding research, please refer to response to comment GB-2. No classified weapons

#	Com-ment #	Letter (Author)	Response
			research is performed at Berkeley Lab as a whole, and neither would classified and/or weapons research be performed at the Molecular Foundry.
43	DS-1	Berkeley City Council-member Donna Spring	Regarding requested preparation of an EIR, please refer to response to comment SW-3, below. Regarding earthquake hazards, please refer to response to comment SW-1, below. Regarding fire risks, please refer to response to comment SW-2, below. Regarding site access, please refer to response to comment CO-1, below.
44	DS-2	Berkeley City Council-member Donna Spring	Biological resources are discussed on pages 61-65. No significant impacts to vegetation or wildlife would result from the project as mitigated. Regarding susceptibility to slides in combination with seismic activity, the IS/MND geology and soils section discusses landsliding on page 71 and finds potential impacts to be less than significant with application of existing LRDP EIR mitigation measures.
45	DS-3	Berkeley City Council-member Donna Spring	Cumulative impacts are discussed in the IS/MND on pages 105-110. Impacts from NEQSS were considered as part of the analysis. The IS/ND for the Mathematics Sciences Research Institute (MSRI) Expansion Project was issued by UC Berkeley on January 10, 2003, after issuance of the IS/MND for the Molecular Foundry. The MSRI Expansion IS/ND found that the project would not result in any new impacts that were not anticipated and analyzed in UC Berkeley's 1990 LRDP EIR. For example, it would create no increase in facility population, and therefore, no increase in parking needs or traffic. No reasonably foreseeable impacts from the MSRI Expansion project would combine with impacts from the Molecular Foundry project to create a cumulatively considerable effect.
46	DS-4	Berkeley City Council-member Donna Spring	Regarding fire risks, please refer to response to comment SW-2, below. Berkeley Lab's fire department is managed by Alameda County, and if needed, the Laboratory can rely upon the fire protection, emergency medical, and hazard response resources of the County, which are substantially more extensive than those of the City of Berkeley. LBNL also provides backup fire, emergency medical, and hazard response to the City of Berkeley through a mutual aid agreement.
47	DS-5	Berkeley City Council-member Donna Spring	Impacts on utilities and service systems, which were found to be less than significant with application of existing LRDP mitigation measures, are discussed in the IS/MND at pages 100-103. As stated on page 101, it is not anticipated that additional needs created by the project would be sufficient to necessitate construction of new or expanded systems. Also, please refer to response to comment EBMUD-15.
48	DS-6	Berkeley City Council-member Donna Spring	Traffic and parking impacts, which were found to be less than significant with application of existing LRDP mitigation measures, are discussed in the IS/MND at pages 94-99. No new mitigation was found to be necessary.
49	DS-7	Berkeley City Council-member Donna Spring	Nanoscience is a DOE priority and promises to be an important research area in the future. The comment is speculative. Alternatives to constructing a new facility were considered, including using existing space at Berkeley Lab. There is insufficient existing space to achieve one of the main objectives of the project, which is to provide a dedicated, state-of-the-art space for collaborative nanoscience research by scientists from a wide variety of disciplines. Please see IS/MND pages 2 and 3.
50	DS-8	Berkeley City	Regarding hazardous materials, animals, and organisms, please refer to response to

#	Com-ment #	Letter (Author)	Response
		Council-member Donna Spring	comment SW-2, below.
51	CO-1	Catherine Orozco	Regarding earthquake hazards, please refer to response to comment SW-1, below. Regarding fire risk, please refer to response to comment SW-2, below. Berkeley Lab has three vehicular entry/exit points, which provide redundant regular and emergency access and egress to and from the project location. Furthermore, the proposed project would be constructed on the opposite side of the canyon from the Panoramic Hill Neighborhood, and in an area in which vegetation is intensively maintained for fire control purposes.
52	CO-1A	Catherine Orozco	Regarding buffer zones, refer to response to comment MM-1. Regarding impacts to users of recreational areas, refer to response to comment JT-3. No significant land use impacts would occur as a result of the project as mitigated; see pages 80-83.
53	CO-2	Catherine Orozco	Traffic impacts, which were found to be less than significant with the continuation of mitigation measures adopted as part of the LRDP EIR as amended, are discussed in the IS/MND at pages 94-100. The analysis considers traffic impacts in the areas suggested by the commentor, and it further analyzes closely the effects on key intersections of Gayley Road and Piedmont Avenue. The analysis also shows that only a portion of the projected 137 occupants of the proposed building would be eligible (have vehicular site access) and likely to drive, and those would be further dispersed over the Lab's three entryways and over a particularly broad commute period.
54	CO-3	Catherine Orozco	The IS/MND analysis concludes that there will be no significant adverse impacts to the environment, including to the nearest populated and residential areas. The buildings would be constructed to meet or exceed all applicable building, fire, earthquake, safety, and hazard standards. Activities would meet or exceed all applicable OSHA requirements, DOE, LBNL standards, and to the terms of all applicable permits and regulations, including any that would be imposed by the Bay Area Air Quality Management District. The project would not include the use of radioactive materials. Pursuant to the requirements of CEQA, the IS/MND has considered all reasonably foreseeable "possible negative effects."
55	CO-4	Catherine Orozco	Refer to response to comment CO-1A regarding land use. Visual impacts, which would be less than significant with application of existing LRDP mitigation measures, are discussed on pages 44-48. No significant impacts to endangered species would result from the project as mitigated; see the Biological Resources section at pages 61-65.
56	CO-5	Catherine Orozco	Comment noted. Please refer to response to comment SW-3, below.
57	JT-1	Janice Thomas	As described in the "Project Objectives" on IS/MND pages 2 and 3, the proposed project would function as a "portal" to several key LBNL resources, including the Advanced Light Source, the National Center for Electron Microscopy, the National Energy Research Scientific Computing Center, and the concentration of scientists and researchers in a broad range of scientific disciplines in the LBNL/UC Berkeley area. Consequently, the only alternative project sites that could meet the project objectives would be those on the LBNL site or in the immediate area. Alternate sites were considered in the early planning stages

#	Com-ment #	Letter (Author)	Response
			of this project, but were not found to be feasible due to land and building costs, soil conditions, access, and a number of other practical considerations. LBNL disagrees with the comment that the chosen site is in the "section of the LBNL campus that is closest to a residential area." The proposed project would be approximately one-third of a mile distant from the nearest Panoramic Hill residence. There are residences within 50 feet of LBNL boundaries.
58	JT-2	Janice Thomas	Comment noted. The IS/MND does not state or imply that the Panoramic Hill neighborhood is a cluster of a few houses. The project would not create any significant environmental effects affecting any residence in the neighborhood, including those listed on the referenced inventory of historic properties.
59	JT-3	Janice Thomas	The IS/MND states that the Proposed Project would not create or substantially contribute to a significant toxic air contaminant (TAC) impact, and that residents near the project would not be exposed to significant levels of hazardous air pollutants as a result of the new laboratory construction and operation (pages 57-60, and Appendix E). Emissions of hazardous chemicals from the proposed project are expected to be extremely small and are not expected to trigger BAAQMD's health-based regulatory thresholds at the project stacks, well within the LBNL fenceline. Dispersion and wind patterns would reduce any emissions concentration dramatically beyond the LBNL fenceline. Recreational users of Strawberry Canyon would be considerably beyond the LBNL fenceline and marginally closer to the Molecular Foundry than the nearest residences; however, recreational users in this area would generally be present for much shorter durations and with less frequency than residents. The conclusion of no significant health impact would apply to these recreational users as it would to area residents. Using conservative screening assumptions and based on planning chemical inventories for the Molecular Foundry project, LBNL's analysis of potential toxic air contaminant emissions finds that the great majority of chemical emissions at the Molecular Foundry stacks would be less than one percent of the BAAQMD threshold or "trigger" levels, and that the remaining four chemicals would be emitted at less than five percent of BAAQMD threshold levels. These threshold levels indicate where TAC emissions would be high enough to trigger a potential health concern and, consequently, some sort of risk evaluation would be required. Because the predicted TAC emissions from the proposed Molecular Foundry would be far below levels of concern at the source, and because the receptors raised by the commentor are well outside of the LBNL fenceline and relatively distant from the source, there would be no significant impact to nearby residents or to users of nearby recreational facilities.
60	JT-4	Janice Thomas	The IS/MND describes the site setting on page 9. Visual impacts, which would be less than significant with the continuation of mitigation measures adopted in the LRDP EIR, as amended, are discussed on pages 44-48. The Molecular Foundry would be located in the midst of a cluster of buildings separated from other developed areas. Programmatic development of this area of LBNL is identified, analyzed, and mitigated, as necessary, in the 1987 LRDP EIR, as amended. The Molecular Foundry building would not be visible from the UC Botanical Gardens due to distance and intervening buildings, terrain, and trees. Appendix D of this IS/MND includes a visual simulation of the Proposed Project from among the nearest Panoramic Hill Neighborhood homes in Strawberry Canyon.

#	Com-ment #	Letter (Author)	Response
61	JT-5	Janice Thomas	The figure cited by the comment is not referenced in the IS/MND. This figure was included in the 1997 SEIR Addendum to show land use designations of former UC Berkeley-managed land, and was not intended to show neighborhood or athletic field locations.
62	JT-6	Janice Thomas	Aesthetic impacts were assessed in accordance with CEQA requirements. Please refer to response to comment JT-4. Also, refer to contextual figures provided in Appendix D.
63	JT-7	Janice Thomas	The IS/MND does not state that the only visual impacts would be to vistas from private lands. Regarding location of the building in a buffer zone, see page 80 of the Land Use and Planning Section, which describes how the building is generally consistent with the land use designations set forth under the LRDP.
64	JT-8	Janice Thomas	The tops of Building 66 and Building 72 are 842' and 866' above sea level, respectively. The top of the Molecular Foundry would be 877' above sea level. None of the adjacent buildings are only two stories in height—the adjacent building 66, for example, is four stories tall. The proposed structure does not conflict with the mitigation measure referenced. First, the structure, which would be four stories atop two basement levels, is not a high-rise building. Secondly, the mitigation measure does not bar higher buildings.
65	JT-9	Janice Thomas	Please refer to response to comment SW-1, below.
66	JT-10	Janice Thomas	The project would have no reasonably foreseeable significant impact on the UC Berkeley land mentioned in the comment.
67	JT-11	Janice Thomas	The IS/MND traffic analysis identifies estimated distribution of Molecular Foundry commuters. LBNL disagrees with the comment that "commuters to this facility will necessarily travel" along parts of Gayley Road, Piedmont Avenue, or the Belrose-Warrington-Derby Corridor. The IS/MND traffic analysis projects that approximately half of the project commutes will enter the Lab through the main Blackberry Canyon entrance; many, if not most of these commuters would use either University Avenue or Hearst Avenue as an access corridor. Of the remaining commuters, the analysis projects that about half would use the Grizzly Peak Road / Centennial Drive route to LBNL. Of the commuters using the routes identified by the commentor, many of these would not be during peak commute hours due to the somewhat irregular schedules maintained by laboratory scientific and technical staff; thus contribution of the Proposed Project to the peak hour traffic load would be less than significant.
68	JT-11A	Janice Thomas	The LRDP EIR, as amended, was found to be adequate in its analysis and mitigation of traffic impacts each time it was updated or amended pursuant to the CEQA process. The EIR was first approved in 1987, a Supplemental EIR was approved in 1993, and an Addendum to the Supplemental EIR was approved in 1997. Information about the LRDP EIR, as amended, is included on IS/MND pages 2 and 4 – 6. LBNL intends to prepare and circulate a new LRDP and LRDP EIR in late 2003.
69	JT-11B	Janice Thomas	The IS/MND does not report having conducted a "traffic study" on the dates mentioned, but rather reports having conducted peak-period traffic counts that support the analysis and conclusions that are described on IS/MND pages 94-99. Methodology for counts was conventional, accepted counting methods and was overseen by qualified traffic engineers. Dates of collection and raw traffic data are available for review; please contact Jeff

#	Com-ment #	Letter (Author)	Response
			Philliber, LBNL Environmental Planning Coordinator at (510) 486-5257. Traffic conditions in 2020 (within the project) were forecast on the basis of information developed for the 2001 Berkeley General Plan.
70	JT-11C	Janice Thomas	Please refer to response to comment JT-11. The roadway identified by the commentor is not owned or managed by LBNL. The IS/MND traffic analysis reports that the proposed project would not have a significant impact on area roadways.
71	JT-12	Janice Thomas	The IS/MND contains a full analysis of noise issues and impacts on pages 84 – 90. Expert noise analysts visited both the project site and the Panoramic Hill neighborhood and determined the number and location of noise measurements to be taken. Using topographic maps and firsthand reconnaissance of the Strawberry Canyon, these noise analysts fully considered the range of relevant issues and the acoustical properties of the project site and its environs in preparing the analysis. It is correct and relevant to identify the facts about standard noise attenuation, particularly since project noise sources would exist in a fairly "straight line" relationship with the nearest residences, with the caveat that intervening trees would probably have a minor muffling effect on project noise. Three different noise tests in three different locations were conducted in order to provide additional confidence in the data as well as to account for acoustical properties of the canyon. Noise differences between the three representative sample testing locations in the Panoramic Hill neighborhood were fairly minor and do not indicate that the canyon plays a major role in amplifying or dampening noise. In two of three cases, project site noises which exceeded 80 dB at 50 feet distance were not perceptible to the human ear at the Panoramic Hill locations; in only one case was this noise level even perceptible—in all three cases, noise levels were well below noise ordinance standards and significance thresholds. Previous development and current operations and noise-intensive maintenance activities in the same area in the Canyon do not bear out the theory of acoustic amplification that leads to violations of noise ordinances.
72	JT-12A	Janice Thomas	In order to simulate construction noise energies comparable to those expected of the proposed project, a large-horsepower wood chipper was brought out to the project site and operated at full throttle. At peaks of over 85 dB, this level of noise is fairly representative of most of the loudest construction-related noise that would be expected from this project. From the testing sites in the Panoramic Hill neighborhood, this noise level was generally not perceptible to the human ear. It was decided to attempt to generate a louder noise to see how that would register on the remote sensor equipment. The only way to create such noise (most of LBNL's potentially noisiest equipment contains noise muffling devices) was to run very large pieces of wood through the chipper. Although this method did achieve noise peaks above any type of construction activity that would be associated with this project, the noises were of short duration and thus almost impossible to pick up on the remote noise sensors because of other intermittent noises in the receiving neighborhood area, including overhead airplanes and passing cars. As these noise energies were greater than any that would be associated with the proposed project, and because other tests showed that project effects were well below significance levels, successful noise readings of this particular test were not necessary for the analysis and conclusion of no significant

#	Com-ment #	Letter (Author)	Response
			impact. The testing also indicated that the loudest construction noise from the proposed project would nevertheless likely be less perceptible to Panoramic Hill neighbors than ambient-type noise such as that generated by local automobiles or overhead aircraft.
73	JT-12B	Janice Thomas	The commentor observes that noise measurements in the Panoramic Hill area (LRDP EIR, as amended) were reported to be several decibels higher in 1992 than those reported in this current analysis. This could be due to measurements being taken at different times of day or days of the week, different temperatures and weather conditions, different testing locations, etc. For example, it could have been a windier day when sampling was conducted in 1992. In any event, the fact that ambient noise was lower in the IS/MND test only serves to make the simulated noise testing more conservative. For example, had ambient noise levels in the Panoramic Hill neighborhood for the Molecular Foundry testing been as high as those taken in 1992, the simulated project noise testing with the chipper and the wood grinding would likely have been imperceptible to both humans and noise sensors.
74	JT-12C	Janice Thomas	Comment noted. IS/MND page 86 describes the loudest potential construction noise that might be associated with the proposed project (exterior finishing, which could create up to 89 dBA at 50 feet).
75	JT-12D	Janice Thomas	Operational noise from the proposed Molecular Foundry would be much lower than construction phase noise, would be well below local noise ordinance limits, and would likely not be noticeable off-site. Noise would be similar to that generated by buildings currently in the immediate area; highest noise levels would probably be generated by delivery trucks and, on occasion, short-term testing of the emergency generator. The central utility building would, by design, be muffled to minimize process noises. Due to the nature of the work that takes place in the adjacent National Center for Electron Microscopy, noise and vibration in the vicinity has to be kept at an absolute minimum.
76	JT-13	Janice Thomas	LBNL followed all requirements of CEQA in regard to public involvement, participation opportunities, and outreach, and often exceeded those requirements. The process for circulating a Negative Declaration for public review does not require a public hearing or informational meeting. The required minimum (and typical) period for public review and comment on a Negative Declaration is 30 calendar days. Because the initial comment period was to occur in the December-January time-frame, and thus would coincide with seasonal holidays, five extra days were included in the initial comment period. To further accommodate the City of Berkeley and a few citizens who asked for yet additional review time, LBNL ultimately granted two extensions to this comment period for a total of 58 days. Please see response to comment SK-1. Notices of the availability and intent to adopt the draft Initial Study/Mitigated Negative Declaration for the proposed Molecular Foundry were circulated in four ways: 1) ads were placed in both the Oakland Tribune and the Berkeley Voice newspapers; 2) three separate mailings were made to over 200 people – these mailings focused on neighborhoods near the LBNL as well as planning, regulatory, and community leaders; 3) Both the notices and the full environmental review documents were posted on the Lab's website;

#	Com-ment #	Letter (Author)	Response
			4) Copies of environmental review documents, the background information from the Conceptual Design Report, and notices of the intent to adopt a mitigated negative declaration were placed in the Berkeley Public Library, the Department of Energy's Oakland Reading Room, and in the Lab's Building 50 Library. In addition, background "tiering" documents and the current Long Range Development Plan were made available in the Berkeley Public Library. The Laboratory sought speaking opportunities in several City and community venues to present and discuss the proposed Molecular Foundry project. During the circulation timeframe of the IS/MND, Berkeley Lab was present at the following meetings to present information about the Molecular Foundry: Two Berkeley City Council meetings; two CEAC (Community Environmental Advisory Commission) meetings; and meetings with Berkeley City staff in planning and toxics management areas, the Berkeley Peace & Justice Commission, the Berkeley Breakfast Club, the Berkeley Lab Friends of Science, and the Claremont-Elmwood Neighborhood Association. An earlier meeting was held with the Sierra Club Energy Subcommittee, and a meeting was held with the ExLs (a Lab retiree organization) after close of the comment period. In addition, the nanoscience research activities of the Laboratory and the proposed Molecular Foundry have been requested as topics for meetings of the Berkeley Rotary (scheduled for April 23, 2003), and an article will be circulated in the Spring 2003 Laboratory community newsletter, Science on the Hill. LBNL requested—but was not invited—to present information at the February 2, 2003 meeting of the Panoramic Hill Association. The item was instead presented and discussed by a retired Lab senior scientist, and current Council representative, Dr. Gordon Wozniak. Prior to the circulation of the IS/MND, Berkeley Lab publicized the Molecular Foundry proposal locally through publications beginning in Spring of 2002. For example, LBNL's biweekly newspaper ran a front-page story on the Molecular Foundry, which was distributed to over 70 community leaders. Successive articles on the nanosciences and referencing the Molecular Foundry were published in this forum during Spring, Summer and Fall 2002. The Lab's scientific magazine, Berkeley Lab Highlights 2002-2003, distributed to over 4,000 people, also featured articles on the nanoscience and referenced the Molecular Foundry.
77	JT-13A	Janice Thomas	The "Draft" Tiered Initial Study / Mitigated Negative Declaration was issued for public review and comment; based on this review, LBNL has taken all comments received under consideration in preparing this "Final" Initial Study / Mitigated Negative Declaration for presentation to The UC Regents. This is conventional nomenclature and is used by various campuses throughout the University of California system. The use of the terms "Draft" and "Final" for Environmental Impact Reports under CEQA does not obligate the lead agency to circulate final documents for a second round of public review (CEQA Guidelines, Section 15089).
78	JT-13B	Janice Thomas	Consistent with CEQA Guidelines, Section 15152, the IS/MND (page 2) identifies the relevant CEQA documents upon which this analysis is tiered, and it reports that "copies of these documents can be reviewed at" the Berkeley Public Library. In addition, an LBNL contact name and phone number are provided as an alternative for people wishing to review these documents.

#	Com-ment #	Letter (Author)	Response
79	JT-13C	Janice Thomas	LBNL regrets that it may have been a day behind in updating its website to reflect the first of two comment period extensions. The extensions were neither planned nor required; they were granted by LBNL to accommodate reviewers who had requested more time. The State Clearinghouse was notified of these extensions, as required. LBNL finally closed the comment period on February 5, 2003 and accepted all comments received. This reported short-term delay in updating the website would have occurred well after the minimum legally-mandated review period for the IS/MND had already elapsed. Please refer to response to comment SK-1.
80	JT-14	Janice Thomas	The speaker referred to by the commentor was referring only to the Molecular Foundry analysis, and not to tiering documents or other background resources. Moreover, the speaker in question was referring to and holding up the Environmental Assessment (EA) and not the IS/MND, as mistakenly described by the commentor. The EA is a stand-alone document and is not tiered from other documents. It is also a shorter and simpler document than the IS/MND. The Laboratory regrets any confusion over this.
81	JT-14A	Janice Thomas	As stated in the IS/MND on page 2 and in public notices, LBNL provided the referenced tiering documents to the Berkeley Public Library on 2090 Kittredge Street prior to the opening of the Molecular Foundry IS/MND public comment period. The Berkeley Public Library had agreed to make these documents available to the public. These documents were available when a LBNL representative checked the Library. It is not clear why they were apparently not available to the commentor in the incident in question. According to Berkeley Public Library staff, the documents were probably being logged in and were thus temporarily unavailable when the commentor initially requested them.
82	JT-14B	Janice Thomas	Please refer to response to comment JT-13.
83	JT-15	Janice Thomas	Comment noted. Nanotechnology is briefly described in the Project Description that is part of the IS/MND. Please refer to response to comment AS-2.
84	JT-16	Janice Thomas	Reasonably foreseeable impacts are evaluated in the IS/MND in conformance with CEQA requirements. The comment does not present substantial evidence that any significant impacts to Strawberry Creek would result.
85	JT-17	Janice Thomas	As described in the IS/MND, the proposed Molecular Foundry is consistent with the growth and planning projections of the 1987 LRDP and is programmatically covered under the analysis contained in the 1987 LRDP EIR, as amended. Areas that require updating or more specific information comprise the scope of the Molecular Foundry IS/MND.
86	JT-17A	Janice Thomas	Please refer to response to comment JT-17.
87	JT-17B	Janice Thomas	Please refer to response to comment JT-17. Information contained in the LRDP EIR, as amended, continues to adequately cover many programmatic aspects of the project setting. Subjects requiring additional, more refined, or more updated information were included in the scope of the Molecular Foundry IS/MND.
88	JT-18	Janice Thomas	Development of the project site is in conformance with Berkeley Lab land use policies and the 1987 LRDP, which has been subject to scrutiny and public review by the public and agencies through the 1987 LRDP EIR, as amended.

#	Com-ment #	Letter (Author)	Response
89	JT-18A	Janice Thomas	The comment mistakes the statement regarding US Fish and Wildlife Service (USFWS)'s exclusion of the project site from its final critical habitat designation for the Alameda whipsnake. In 2000, the USFWS specifically visited LBNL to field-review whether an earlier proposed habitat designation for Alameda whipsnake was accurate. After visiting the future area of the proposed Molecular Foundry first-hand, the USFWS concluded that this area was not appropriate whipsnake habitat and thus removed it from the final habitat designation.
90	JT-19	Janice Thomas	CEQA requires that reasonably foreseeable consequences of projects be analyzed. It does not require analysis of speculative impacts, such as the expansion of the facility suggested in the comment. Reasonably foreseeable development of the facility is covered by the IS/MND. Other issues raised in this comment have been addressed in previous responses to this comment letter.
91	MM-1	Mark McDonald	The IS/MND presents substantial evidence that no significant effects would occur as a result of the project as mitigated. No buffer zone is required to mitigate a significant impact. Regarding buffer zones, see also page 82. The proposed project would be approximately one-third mile from the nearest residence, and it would be additionally buffered by screening trees, terrain, and adjacent buildings.
92	MM-2	Mark McDonald	Regarding earthquake hazards, please refer to response to comment SW-1, below. Regarding fire risks, please refer to response to comment SW-2, below. As referenced on page 74, Berkeley Lab has evacuation plans posted in all of its buildings.
93	MM-3	Mark McDonald	Regarding preparation of an EIR, please refer to response to comment SW-3, below. The public review and comment period was extended beyond that mandated under CEQA. Please refer to response to comment JT-13.
94	MM-4	Mark McDonald	No major construction projects have been undertaken recently in the area where the proposed facility would be located. The project locations mentioned by the commentor are thousands of feet away. Demolition of the Bevatron has not been proposed, nor has decommissioning of the 88" Cyclotron. Removal of excess materials from the Bevatron during 2003, a far smaller project, is covered for CEQA purposes under Berkeley Lab's programmatic CEQA document, the LRDP, as amended. That project would not coincide with construction or operation of the Molecular Foundry. The Northeast Quadrant (NEQSS) project is a UC Berkeley, rather than a Berkeley Lab project, and was the subject of an EIR. The effects of this project were considered in the IS/MND, e.g., at page 103. No mixed waste is processed in an "experimental incinerator" at Berkeley Lab.
95	MM-5	Mark McDonald	The types of research that would be conducted at the Molecular Foundry are discussed in the IS/MND at pages 9 and 15. No classified weapons research is performed at Berkeley Lab as a whole, and would not be performed at the Molecular Foundry.
96	SC-1	Susan Cerny	The Department of Energy has not identified future funding for continued operation of the Building 88-inch cyclotron, which is housed in LBNL Building 88. The future of the cyclotron in this building is therefore currently uncertain. However, Building 88 is not large enough to house proposed Molecular Foundry operations. Even if it were large enough, it could not be cleared out and otherwise made ready for some years, past the time by which the Molecular Foundry is expected to be fully operational. Building 88 is also an accelerator building, which by its nature is not suitable for the types of offices and

#	Com-ment #	Letter (Author)	Response
			bench-scale laboratories that would comprise the Molecular Foundry.
97	JS-1	J. Sharp / Daniella Thompson	Please refer to response to comments SK-1 and JT-13.
98	SW-1	Pamela Sihvola / LA Wood	Earthquakes and other hazards (e.g., landslides and soil subsidence) related to geology and soils, which were found to be less than significant with continuation of mitigation measures adopted as part of the LRDP EIR as amended, are discussed in the IS/MND at pages 68-72. The Wildcat Fault is inactive and is discussed in the LRDP EIR as amended. As stated in the 1997 SEIR Addendum at III-B-2, The SEIR discussed the Wildcat Fault, stating that traces of the fault underlie the Lab's Building 74. The Lab retained the firm of Harding-Lawson Associates in 1979 to dig trenches across the fault and conduct a fault investigation. Based on an analysis of the materials found in the trenches, Harding-Lawson concluded that the fault was inactive. Since certification of the SEIR, a fault study of the replacement HWHF site, which is located near Building 74, was conducted by GeoResource Consultants, Inc. and Berkeley Lab geologists in 1994. [FN: Geo/Resource Consultants, Inc., *Fault Investigation, Building 85 Hazardous Waste Handling Facility, Lawrence Berkeley Laboratory, Berkeley, California*, March 1994.] The study, which investigated various hypothetical fault alignments within the site, confirmed the presence of a fault, but concluded it was inactive. This fault is probably a splay off the Wildcat Fault, which was determined to be inactive by Harding-Lawson in 1979. In 1995, the Wildcat Fault was extensively exposed during grading activities for the Human Genome Laboratory, which is located in the same vicinity as Building 74 and the replacement HWHF site. Berkeley Lab geologists used this opportunity to examine the fault and observed features which confirmed Harding-Lawson's prior finding of inactivity. It is inaccurate to state that the area is "already contaminated with tritium." As stated in the IS/MND at page 27, "Based on long-term environmental investigations as well as site soil sampling conducted in January 2002, the site appears to be free of contamination or chemicals of potential concern."
99	SW-2	Pamela Sihvola / LA Wood	The IS/MND analyzes the reasonably foreseeable hazards from the construction and operation of the Molecular Foundry. With the implementation of new project-specific mitigation measures in the areas of biological resources and cultural resources, and the continuation of existing mitigation measures in a variety of areas from the LRDP EIR, as amended, impacts were determined to be less than significant. Mitigation measures are listed at pages 109-113. Air emissions from the Molecular Foundry are discussed in the IS/MND in the Air Quality section beginning on page 50. Hazardous materials are discussed in the Hazards and Hazardous Materials section beginning on page 73. No radiological materials would be used in this project. Cell cultures would be used, employing standard research techniques. No living organisms, including the ones listed in the comment, would be used. Regarding earthquake hazards, refer to response to comment SW-1.

#	Com-ment #	Letter (Author)	Response
			Fire protection is addressed in the IS/MND Public Services section at page 91, which concluded that the proposed project would not result in a significant fire, medical, or safety risk. The building would be designed in conformance with requirements for Group "B" and "H-8" research laboratory occupancies as defined by the California Building Code, Type II Fire Resistive Construction, and with seismic safety and fire safety code requirements. A 200,000-gallon emergency water tank is being constructed in the East Canyon, uphill of the proposed project, that would supply emergency water for fire suppression in the eastern portion of LBNL specifically in a severe earthquake cuts off the Lab's other emergency water sources. The Lab maintains its own fire department, emergency medical, and hazard response services and facilities approximately 1,400 feet from the project site. In addition, LBNL has undertaken an aggressive vegetation management plan to reduce fire risk and intensity throughout all Lab-managed areas. A primary goal of Berkeley Lab's Vegetation Management Plan, described in the Biological Resources section (III-D-1 - III-D-9) of the 1997 SEIR Addendum and referenced in the IS/MND, e.g., at page 16, is to reduce the risk of fire in proximity to the Lab. Berkeley Lab undertakes such protective measures as vegetation trimming, resprout control, removal of dead and unhealthy vegetation, and planting of native species that are more fire-resistant than invasive species. Additional ways in which fire hazards are minimized are discussed at, e.g., pages 16, 26, and 76.
100	SW-3	Pamela Sihvola / LA Wood	The types of research that would be conducted at the Molecular Foundry are discussed in the IS/MND at pages 9 and 15. No classified weapons research is performed at Berkeley Lab as a whole, and would not be performed at the Molecular Foundry. Regarding preparation of an EIR, as discussed on pages 5-6 of the IS/MND, the IS/MND is tiered from the LRDP EIR, as amended. Based on the analysis presented in the IS/MND, it has been determined that the proposed project would not result in any potentially significant impacts that cannot be mitigated to a less-than-significant level or are not sufficiently addressed by the LRDP EIR, as amended. Thus, an EIR is not the appropriate level of CEQA documentation for the proposed project. As stated in the CEQA Guidelines, public agencies should reduce delay and paperwork by using a negative declaration when a project not otherwise exempt will not have a significant effect on the environment. CEQA Guidelines §15006(e).
101	SW-4	Pamela Sihvola / LA Wood	Cumulative impacts are discussed in the IS/MND at pages 104-107. Berkeley Lab has not proposed the deconstruction, decommissioning, and decontamination of the Bevatron, Hilac, or 88-inch accelerator, and these actions therefore were not included in the cumulative impacts analysis. No impacts resulting from NTLF closure operations would result in cumulatively considerable effects when combined with the impacts from Molecular Foundry construction or operation, nor does the comment suggest any particular cumulatively considerable effects. Traffic from NTLF closure operations likely would not coincide with Molecular Foundry construction; even if it did, the level of traffic impacts from each of these projects is so low (e.g., about 15 to 25 truck trips from those phases of NTLF closure that have not already been completed) that no cumulatively considerable effects would result.
102	SW-5	Pamela Sihvola / LA Wood	The IS/MND found that with the implementation of new and continuation of existing mitigation measures, no significant impact to biological and other resources would occur as a result of the proposed project, including those associated with Chicken Creek. Biological resources are discussed in the IS/MND at pages 61-65, and hydrology and

#	Com-ment #	Letter (Author)	Response
			water quality at pages 77-80. Regarding earthquake and landslide hazards, please refer to response to comment SW-1.
103	SW-6	Pamela Sihvola / LA Wood	Cumulative impacts from the proposed Molecular Foundry along with those from the NEQSS and other major area projects are considered in the IS/MND cumulative impacts section. Traffic impacts, which were found to be less than significant with the continuation of mitigation measures adopted in the LRDP EIR, as amended, are discussed in the IS/MND at pages 94-99.
104	SW-7	Pamela Sihvola / LA Wood	Comment noted. Please refer to the response to comment JT-1. The objectives and needs of the proposed Molecular Foundry—to be in close proximity to the unique combination of diverse scientific disciplines and user facilities at LBNL—cannot be satisfied at a different location. Furthermore, the alternate National Laboratory sites identified by the commentor are not known to be "other sites proposed by DOE" for this Molecular Foundry project.
105	SW-8	Pamela Sihvola / LA Wood	Comment noted. CEQA does not require that public hearings be held in regard to IS/MNDs. Please refer to response to comment JT-13.
106	SW-9	Pamela Sihvola / LA Wood	Refer to response to comment SW-1. Tritium and the use of other radioactive materials are not part of the Molecular Foundry project. Whether this proposed facility is a "user facility" or is used exclusively by LBNL staff, the operation and activities within must conform within the project description and impact analysis envelope established in this IS/MND.
107	SW-10	Pamela Sihvola / LA Wood	An Initial Study/Mitigated Negative Declaration was issued for the Advanced Light Source in August 1987. The project was found to have no significant effects to human health. The dose from LBNL-produced penetrating radiation to the maximally exposed individual outside the LBNL fenceline was 0.33 millirem in 2001, compared with the DOE limit of 100 millirem/year. Molecular Foundry operations will not cause ALS operations to have any significant effects, or any effects not previously examined in previous CEQA documents.
108	LM-1	Leuren Moret	Refer to response to comment GB-2 and GB-5.
109	LM-2	Leuren Moret	Refer to response to comment GB-2 and GB-5.
110	LM-3	Leuren Moret	The Molecular Foundry will have a few standard-issue laboratory x-ray machines for analytical and measurement work.
111	LM-4	Leuren Moret	As stated on IS/MND page 18, "All laboratories would be constructed as semi-clean room space, with controls to maintain the pressure in the labs with respect to adjacent vestibules. The laboratory spaces would also be constructed to easily adapt to changing research needs for size, layout, temperature and pressure control, cleanliness, and utilities." Clean rooms are positively pressurized to keep dust out.
112	LM-5	Leuren Moret	No weapons or anti-terrorist work would be conducted at the facility.
113	LM-6	Leuren Moret	Regarding work on organisms, including the ones mentioned in the comment, please refer to response to comment SW-2.

#	Com-ment #	Letter (Author)	Response
114	LM-7	Leuren Moret	Comment noted. LBNL is regularly subject to audits and other oversight by the federal government as part of its role as a DOE-funded institution. Furthermore, LBNL is vigilant in monitoring and upholding the high ethical standards of its staff and researchers. The commentor is correct in noting that, in recent years, LBNL has proactively uncovered, investigated, and publicly disclosed two rare cases of researcher misconduct. Those found to be at fault after the investigations were concluded were dealt with accordingly and are no longer with Berkeley Lab. LBNL has no knowledge of the personal allegations made by the commentor and disagrees with her characterization of Berkeley Lab. While not aware of any such reports, LBNL would welcome the opportunity to review any reports of these alleged transgressions that the commentor presumably would have made at the time she claims to have encountered them.
115	LM-8	Leuren Moret	The Laboratory disagrees with the various assertions in the comment. Regarding the incident cited, as stated in the 1998 Site Environmental Report in §3.7, "On July 24, an unplanned tritium emission of 1.3×10^{12} Bq (35 curies) took place at the National Tritium Labeling Facility (NTLF) during a waste treatability study. See §3.17. Silica gel containing tritium was heated in a process kiln with a monitored but unfiltered exhaust system, causing release of tritium oxide to the environment. Although this release was below the minimum reportable threshold, the incident was reported to DOE and the City of Berkeley. Potential doses to the public from this emission were small (0.03 mrem). Releases of this magnitude are not considered a public health threat by US/EPA. Corrective actions were implemented in 1998 to prevent recurrence of this type of unplanned tritium emission."
116	LM-9	Leuren Moret	Comment noted. LBNL thanks the commentor for her general opinions and views on Berkeley Lab, but disagrees with the commentor's characterization of Berkeley Lab. LBNL is not aware of any "physical abuse," "intimidation and violence," and injurious behavior on the part of LBNL staff and affiliates and would certainly respond appropriately if any credible allegations of such behavior were brought to the Lab's attention.
117	RB-1	Robert Breuer	Please refer to response to comment CO-2, above. Traffic impacts, which were found to be less than significant from the project as mitigated, are discussed in the IS/MND at pages 94-99. LBNL thanks the commentor for his suggestions on improving traffic conditions around Canyon and Stadium Rim Roads. Because the proposed project would not cause a significant impact to traffic on any Berkeley roads, and because the roads in question are not owned or controlled by Berkeley Lab, LBNL is not in a position to be able to implement the commentor's suggestion.
118	RB-2	Robert Breuer	Alternative locations were investigated and found to be infeasible. Please refer to response to comment JT-1.
119	RB-3	Robert Breuer	Comment noted. Please refer to response to comment SW-3.

APPENDIX B

REVISIONS TO IS/MND TEXT

A draft Initial Study / Mitigated Negative Declaration was circulated for agency and public review on December 10, 2002; comments were requested to be received by January 13, 2003. In consideration to requests by the City of Berkeley and individual members of the public, LBNL extended the comment period twice: first from January 13 to January 21, and finally from January 21 to February 5, 2003. Comments that were received and responses are included in the previous section, Appendix A. Based on these comments and further refinements to the project design and analysis, changes have been made to the text of the Initial Study / Mitigated Negative Declaration. None of these additions, changes, or refinements represents the introduction of substantial new information that would indicate a new or significant impact or that would change the conclusions drawn from this analysis.

(New or added text is in bold)

1. Typographical revisions, formatting changes, and spelling, verbal clarification, and grammar corrections have been made throughout the document. Any such changes that might affect the analysis or conclusions are identified in this section.

2. A brief summary of the document is provided as a new introductory section of the IS/MND.

3. Page 3: The following text has been added to the discussion of project objectives:

> **The proposed Project would be a unique facility specifically intended and designed to take advantage of LBNL's unique setting and resources. These resources include the region's rich pool of scientists and researchers, especially those currently at LBNL and UC Berkeley, as well as the singular research facilities at LBNL.** By functioning as a "portal" to LBNL's established major user facilities, the Foundry would also leverage existing nanoscience research capabilities at the Advanced Light Source, the National Center for Electron Microscopy **(NCEM)**, and the National Energy Research Scientific Computing Center. Furthermore, the project would provide significant educational and training opportunities for students and postdoctoral fellows as the "first true generation" of nanoscientists. **Location and design of the Molecular Foundry would take advantage of proximity between the adjacent NCEM and materials science buildings to facilitate access and interaction among researchers and facilities.**

4. Page 9: The following text has been revised in the project description:

> Lawrence Berkeley National Laboratory (LBNL) proposes to build an approximately 94,500 gross square foot (gsf) Molecular Foundry ~~building~~ **project** ~~and an adjacent, subsurface Central Utility Plant (CUP) building~~, to be funded by the U.S. Department of Energy (DOE), as a part of DOE's Office of Basic Energy Sciences.

5. Page 9: The following text has been removed from the discussion of project description:

> The Molecular Foundry would consist of two adjacent buildings: a six-story, 86,500-gsf building that includes laboratories, offices, and conference and seminar rooms; and an 8,000-gsf ~~subsurface~~ utility plant that would also serve as the foundation for approximately 16 surface parking spaces.

6. Page 9: The following text has been added to the project description:

> LBNL anticipates it will use the soil excavated for the Molecular Foundry to construct the new Lee Road extension and widen the existing roadway. See Figure 5 for the **approximate** area of disturbance.

7. Page 16: The following discussion has been added to the project description:

PARCEL LEASE AMENDMENT

The Proposed Project would include an amendment to the existing lease between the University as landlord and the U.S. Department of Energy (DOE) as tenant to accommodate the building site. The lease is governed under the terms of the existing contract between The Regents and DOE for the operation and management of LBNL. This contract is reviewed for CEQA purposes in the 1992 Supplemental EIR and 1997 Addendum to the 1987 LRDP EIR, as amended.

The Molecular Foundry site and its surrounding environs currently occupy three existing parcels: Parcel 13, Parcel 13A, and Parcel 19A; the site also includes an area of approximately 0.21 acres that is owned by the UC Regents within LBNL-managed lands but is not currently leased by DOE. As part of the proposed project, the aforementioned parcels and the currently unleased area would be consolidated into a new parcel for leasing purposes: Parcel 28. Parcel 28 would comprise approximately five acres and would include the area containing existing Buildings 31, 66, 72, 72A, 72B, and 72C. Parcel 28 would be leased for a period of 50 years, which is the standard length of time for a parcel lease between the University and DOE. This amendment to the existing lease would be an administrative transaction that would not have any material or physical effects on the environment or public resources.

8. Page 26: The following text has been added to the description of storm drainage and impermeable area:

> The Proposed Project would add approximately 1.5 acres of impervious surface to the project site. This is less than one-half of one-percent of the ~~total~~ **Upper Strawberry Creek sub-**watershed area of 585 acres. **This would be added to approximately 20 acres of existing impervious surface in the sub-watershed. About half of this impervious surface is on land managed by LBNL.**

9. Page 28: The following text has been added to the description of landscape:

> All trees **and other landscaping** placed by the project would be irrigated as necessary. **In addition, as part of the final design process, irrigation would be designed so as to minimize overspray and runoff.**

Irrigation and landscaping are expected to be consistent with the State Model Water Efficient Landscape Ordinance AB 325.

10. Page 28: The following text has been revised in the description of landscape:

The natural zone includes the fire-resistant ground cover for erosion control, as well as decorative plant materials that would be selected based on their indigenous, ~~water saving, and~~ low-maintenance**, and especially water-saving** characteristics.

11. Page 29: The following text has been added to the description of water supply:

The project would install low-flow plumbing fixtures and water-saving appliances**; other devices and new technology (e.g., drip irrigation, re-circulating cooling systems, etc.) would be considered or employed where practicable to further water conservation**. Water supply would be separated into industrial and domestic cold water systems. The industrial system would serve lab sinks and equipment; the domestic system would serve kitchen, restroom, and drinking fountain functions. Water pressure range would be 35 to 50 pounds per square inch. Engineering and safety features such as backflow preventers will be installed where appropriate and feasible. **All new projects are subject to the East Bay Municipal Utility District's Water Service Regulations at the time of application for service.**

12. Page 32: The following text has been added to the discussion of required approvals:

A construction-specific Storm Water Pollution Prevention Plan (SWPPP) will be prepared. In addition, modification to the Lab's **site-wide** SWPPP, which is part of its NPDES Phase I General Industrial Stormwater Discharge Permit, would be necessary to update such items as site maps, storm drainage rerouting, and estimates of impervious area on the site.

13. Page 50: The following text has been added to the discussion of air quality:

Two subsequent changes to the thresholds **used in the 1992 SEIR** are the reduction from 150 pounds-per-day to 80 pounds-per-day and the addition of a 15-tons/year standard for the following criteria pollutant emissions: reactive organic gases (ROG), oxides of Nitrogen (NO_x), and PM-10.

14. Page 52: The following text has been added to the discussion of air quality:

The Bay Area Air Basin is currently designated as nonattainment for state ozone standards and the federal 1-hour ozone standard, although ozone levels measured in the Berkeley and Oakland area have not exceeded the standard in the past four years **(BAAQMD's monitoring network last measured an exceedance in 1993)**.

15. Page 55: The following revision has been made to the title of Table VIII3e:

TABLE VIII.3e
SUMMARY OF OZONE DATA SUMMARIES FOR THE
SAN FRANCISCO BAY AREA AIR BASIN, 1990–~~2002~~ **2001**

16. Page 56: The following text has been added to the discussion of air quality:

    - **Bay Area 2001** Ozone Attainment Plan for the 1-Hour National Ozone Standard developed to meet federal ozone air quality planning requirements;

17. Page 57: The following addition and revision has been made to the discussion of air quality:

    Exhaust emissions will be controlled by an abatement device. Emissions associated with this generator would be ~~accounted for~~ **determined** and limited by the Permit to Operate that would be required from the BAAQMD.

18. Page 57: The following revision has been made to the discussion of air quality:

    Project-related emissions would not be expected to conflict with or obstruct implementation of any applicable air quality plans, including the Ozone Attainment Plan, the ~~Bay Area 2000~~ Clean Air Plan, and the Carbon Monoxide Maintenance Plan.

19. Page 58: The following revision has been made to the discussion of air quality:

    BAAQMD has a regulatory structure in place to evaluate the health risks associated with routine TAC emissions from any activity. Most applicable to the Molecular Foundry, BAAQMD's permitting program establishes risk-based TAC emission thresholds for new or modified sources. The need for an operating permit for the Molecular Foundry's laboratory activities would be assessed from emissions estimates made closer to actual construction of the facility. If these estimates remain consistent with current estimates for the Proposed Project as well as emissions from other research laboratories at LBNL, the Molecular Foundry would qualify for BAAQMD's permit exemption for research laboratories. BAAQMD's permitting process ensures that proposed emissions from a project are less-than-significant, and if necessary, BAAQMD would impose project conditions to reduce projected emissions to conform to District significance standards before issuing a permit. BAAQMD has integrated TAC reporting into their permitting program. LBNL submitted a facility-wide TAC emissions inventory in the early 1990s in compliance with the Air Toxics Hot Spots Program (Assembly Bill 2588). New information is provided to BAAQMD via air emissions permit applications and renewals. BAAQMD publishes an annual report on TAC emissions for all facilities in their district. In the most recent report, LBNL TAC emissions continued to remain below the listing thresholds. ~~Two BAAQMD programs evaluate the health risks associated with routine TAC emissions from any activity. First, and most applicable to the Molecular Foundry, BAAQMD's permitting pogram identifies activities that would exceed risk-based TAC emission thresholds from new or modified sources. The need for an operating permit for laboratory activities would be assessed from more reliable emissions estimates made closer to actual construction of the facility, although it is expected that the Molecular Foundry would qualify for BAAQMD's permit exemption for research laboratories, like other research activities found at LBNL. The purpose of this permitting process is to ensure that proposed emissions are less-than-significant, and the BAAQMD would impose project conditions, if necessary, to reduce projected emissions until they conform to District significance standards before issuing a permit. Second, BAAQMD's Air Toxics Hot Spots Program updates a facility-wide TAC emissions inventory once each year during the renewal of~~

~~operating permits. To date, LBNL TAC emissions fall below the thresholds for incorporation into the BAAQMD Toxic Inventory Database.~~

20. Page 58: The following text has been revised in the analysis of air quality:

The completed Hazard Analysis Report will ~~identify in detail the toxic substances that would be used and stored in each laboratory~~ **provide estimates of the types and amounts of chemicals**, and the associated types of experiments that would be conducted. These **chemicals** include organic solvents and toxic metals, such as cadmium and arsenic. **Chemicals used in laboratories would generally be handled in very small quantities that are typical of bench-top research activities.** ~~No solid chemical would exceed more than a few hundred grams (i.e., probably well less than one pound) and no liquid would exceed more than a gallon. Also, only a few small gas cylinders containing flammable or toxic substances would be stored on site.~~ This is consistent with the nature of the experiments that deal with substances and properties on a micro- and nano-scale. **In addition, the proposed Molecular Foundry project would not include the use of radioactive materials. For these reasons, emissions-related public health risks would be extremely small and there would be no significant air quality public health risk from laboratory activities**~~. Since the amounts of chemicals in the laboratory would be low, there would be no quantifiable air quality public health risk from laboratory activities.~~

21. Page 58: The following text has been added to the analysis of air quality:

At that distance, operational TAC emissions from the Proposed Project are expected to be **extremely small or** immeasurable.

22. Page 58: The following text has been revised in footnote 10 of the air quality analysis:

Current estimates indicate that ~~fenceline~~ concentrations of TAC emissions from the proposed project would be so low **at the nearest residential neighborhood** as to be immeasurable **or extremely small using commercially-available analytical methods.** . In fact, preliminary screening estimates indicate that the entire expected annual chemical inventory of the proposed Molecular Foundry would be so small that, were it to be emitted at a **very conservative** 100% annual rate ~~(a physically impossible, conservative scenario),~~ the vast majority of these chemicals would be unlikely to even approach BAAQMD ~~regulatory~~ **permitting** thresholds at the **much closer** LBNL fenceline.

23. Page 71: The following text has been revised in the analysis of geology and soils:

c, d) Impacts from potential ~~sandsliding~~ **landsliding** (section VI-iv) and liquefaction ground failures including lateral spreading (Section VI-I through iii), soil subsidence, and soil collapse have been determined to be less than significant.

24. Page 75: The following text has been added to the discussion of hazards and hazardous materials:

The Molecular Foundry facility operations would not include bulk storage**—that is, large-quantity storage beyond what is reasonably needed for use and replenishment—** of flammable or combustible liquids or gases, corrosive, caustic, or otherwise reactive or toxic chemical substances.

25. Page 75: The following revisions have been made to the discussion of hazards and hazardous materials:

> **Given the types and quantities of chemicals expected, LBNL safety practices, and the Molecular Foundry building design criteria, chemicals** ~~Chemicals~~ used at the site would ~~be used in very small amounts, and would therefore~~ not create a hazard to the public **or the environment**.

26. Page 92: The following text has been revised in the analysis of public services:

> **The construction phase of the project would not significantly affect response times to the project site and its vicinity as a result of any potential temporary construction-related roadway lane closures and detours. However, the** ~~The~~ Proposed Project is within an area already served by adequate fire and police protection services and would not result in the need for additional or expanded security or fire protection facilities. ~~However, the construction phase of the project could affect response times to the project site and its vicinity as a result of any potential temporary construction-related roadway lane closures and detours.~~

27. Page 96: The following text has been added to the discussion of traffic impacts:

Traffic conditions in 2020 (within the project) were forecast on the basis of information developed for the 2001 Berkeley General Plan. The majority of study intersections are projected to continue operating at LOS D or better in 2020. The p.m. peak-hour level of service at the intersection of University Avenue / Sixth Street is projected to degrade from LOS D to F.

28. Page 97: The following text has been added to the discussion of traffic impacts:

Under both the "Existing plus Project" **and "Cumulative plus Project"** scenarios, levels of service at all study intersections would not change with the addition of traffic from the proposed project,…

29. Page 101: The following text has been revised in the analysis of public utilities and service systems:

> The LBNL facility receives its water from the East Bay Municipal Utility District (EBMUD). **The proposed project would be served by EBMUD's Shasta Pressure Zone (PZ), which provides water service to customers within an elevation range of 900 to 1,050 feet, and the Berkeley View PZ, which provides water service to customers within an elevation range of 1,050 to 1,250 feet. The LBNL site receives its water supply via a 12-inch meter in Campus Drive in the Shasta PZ and via a 6-inch meter in Summit Road from the Berkeley View PZ. In addition, Department of Energy (DOE) owns and maintains two 200,000-gallon storage tanks on site for emergency supply in the event of interruption of EBMUD's service and a third 200,000-gallon emergency tank is under construction in the East Canyon area upslope of the project site. The existing distribution system supplies water for all laboratory uses and has sufficient capacity to meet the flow rate and duration requirements for both daily use and fire protection. Although the project would be expected to increase use by over 1,200 gallons per day, it would not cause a significant impact as the two existing EBMUD PZs have combined storage capacity of 3.1 million gallons**. ~~The primary source of supply is the Shasta Tank, and EBMUD's one million-gallon capacity Berkeley View Tank provides a secondary water supply source. In addition, two 200,000-gallon on-site storage tanks hold an emergency supply in the event of interruption of EBMUD service; a third~~

~~200,000-gallon emergency water tank is under construction in the East Canyon area. The existing distribution system supplies water for all laboratory uses and has sufficient capacity to meet the flow rate and duration requirements for both daily use and fire protection. Although the project would be expected to increase use by approximately 7,050 gallons per day, it would not cause a significant impact because unrestricted water volume is available from EBMUD.~~

30. Page 101: The following text has been revised in the analysis of public utilities and service systems:

All LBNL sanitary sewage runs through the City of Berkeley's basin No. 17. The City Department of Public Works has confirmed that there is considerable remaining average and peak wet weather capacity in this basin. The proposed project would most likely be directed into subbasin #17-003; this subbasin has more than adequate average and peak wet weather capacity to accommodate the estimated 1,200 gpd sanitary sewage flows from the proposed project.

The main concern with sewer flow in this subbasin and region-wide in the EBMUD system is the infiltration and inflow of stormwater into the sanitary sewer system due to the poor condition of aging sewer pipes (known as "infiltration / inflow" or "I/I"). LBNL has aggressively acted to address infiltration / inflow problems in its own system and has made dramatic improvements in recent years. In addition, an aggressive plumbing maintenance and upgrade effort has been undertaken during the past 15 years by LBNL, along with installation of water saving devices and systems, to substantially lower average sewer flows as well. The savings realized by these on-going efforts has reduced both peak wet weather as well as average sewer flows by well over half. Moreover, LBNL's peak wet weather infiltration / inflow rate is less than half that of the City of Berkeley and approximately only ten-percent of that found in EBMUD's district on average. LBNL continues to seek ways in which to reduce both water consumption and sewage generation.

In 1984, LBNL's allocated sewer flow was approximately 200,000 gallons per day (gpd). Due to historic infiltration / inflow, that amount was much higher during peak wet weather events. In recent years, due to the aforementioned efforts, that average annual sewer flow has been reduced by approximately 100,000 gpd, and by even greater amounts during wet weather. The proposed Molecular Foundry is expected to generate less than 1,200 gpd of sewage. This incremental amount falls well below what was allocated to LBNL previous to its sewer upgrade projects. It is also consistent with the 1987 LRDP EIR, as amended, which anticipated, analyzed, and found less-than-significant impacts for buildout levels of sanitary sewage at much higher than current levels, even with inclusion of the proposed project. Moreover, because the sewer lines installed for the Molecular Foundry would be new, state-of-the-art, and virtually free of stormwater infiltration, the proposed project would add only incremental amounts in both dry and wet weather and would not contribute to the problem of I/I surplus flows during peak wet weather events.

Through the University of California, LBNL currently pays the City of Berkeley for assessed sewer services. In addition, the University has contributed to the City of Berkeley's sewer upgrade program. This program is intended to increase wet weather flow capacity and decrease infiltration / inflow conditions.

Page 104: The following text has been added to the discussion of cumulative impacts:

The Proposed Project would incorporate LRDP EIR, as amended, mitigation measures designed to safeguard the aesthetic character of the University-owned, LBNL-managed hillside area. No significant cumulative impact to aesthetic or visual resources is expected.

Page 105: The following text has been added to the discussion of cumulative impacts:

The Proposed Project **would not create any new significant cumulative impacts to biological resources. The Proposed Project** and the proposed 50X Building would not likely affect any special status species.

33. Page 105: The following text has been added to the discussion of cumulative impacts:

No significant cumulative geology, soils, or seismicity impacts would be expected to result from the Proposed Project.

34. Page 105: The following text has been added to the discussion of cumulative impacts:

The Proposed Project **would not create any significant cumulative hazards or hazardous materials impacts. The Proposed Project** would generate relatively small amounts of TAC emissions in the area.

35. Page 106: The following text has been added to the discussion of cumulative impacts:

The Proposed Project **would not result in a significant cumulative impact to hydrology or water quality. The Project** would result in an approximately 1.5-acre loss of permeable surface.

36. Page 106: The following text has been added to the discussion of cumulative impacts:

The Proposed Project **would not result in a significant cumulative land use impact. The Project** would not be located in the vicinity of any other planned projects, nor would it be expected to result in any negative land use impacts, particularly in concert with other projects.

37. Page 106: The following text has been added to the discussion of cumulative impacts:

The Proposed Project would not result in a significant cumulative noise impact.

38. Page 106: The following text has been added to the discussion of cumulative impacts:

The Proposed Project **would not result in a significant cumulative impact to housing resources or population. The Project** would not induce a substantial growth in local population, nor would it displace any people or conflict with any housing or population projections in the LRDP or any other local planning documents.

39. Page 107: The following text has been added to the discussion of cumulative impacts:

The Proposed Project would not result in a significant cumulative impact to public services in the area.

40. Page 107: The following text has been added to the discussion of cumulative impacts:

The Proposed Project would not result in a significant cumulative impact to area traffic or circulation.

41. Page 108: The following text has been added to the discussion of cumulative impacts:

The Proposed Project would not result in a significant cumulative impact to utilities or energy resources.

APPENDIX C

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Monitoring and Reporting Program
Construction and Operation of Molecular Foundry
Lawrence Berkeley National Laboratory; SCH #2002122051

Mitigation Measure	IS/MND Reference Page	Mitigation Measure	Monitoring Milestone	Party Responsible for Monitoring	Verification of Compliance	
					Date	Remarks
BIOLOGICAL RESOURCES						
Molecular Foundry MM-1	Page 62	Prior to the initiation of excavation, construction, or vehicle operation, the project area shall be surveyed by a designated monitor, trained in Alameda whipsnake identification and ecology by a qualified biologist, to ensure that no Alameda whipsnakes are present. This survey shall not be intended to be a protocol-level survey, but rather one designed to verify that no snakes are actually on site.	Prior to site preparation and grading.	Molecular Foundry Project Manager & LBNL Environmental Planning Coordinator		
Molecular Foundry MM-2	Page 62	All on-site workers shall attend an Alameda whipsnake information session conducted by the designated monitor. This session shall cover identification of the species and procedures to be followed if an individual is found on site.	Beginning of site excavation and construction	Molecular Foundry Project Manager & LBNL Environmental Planning Coordinator		

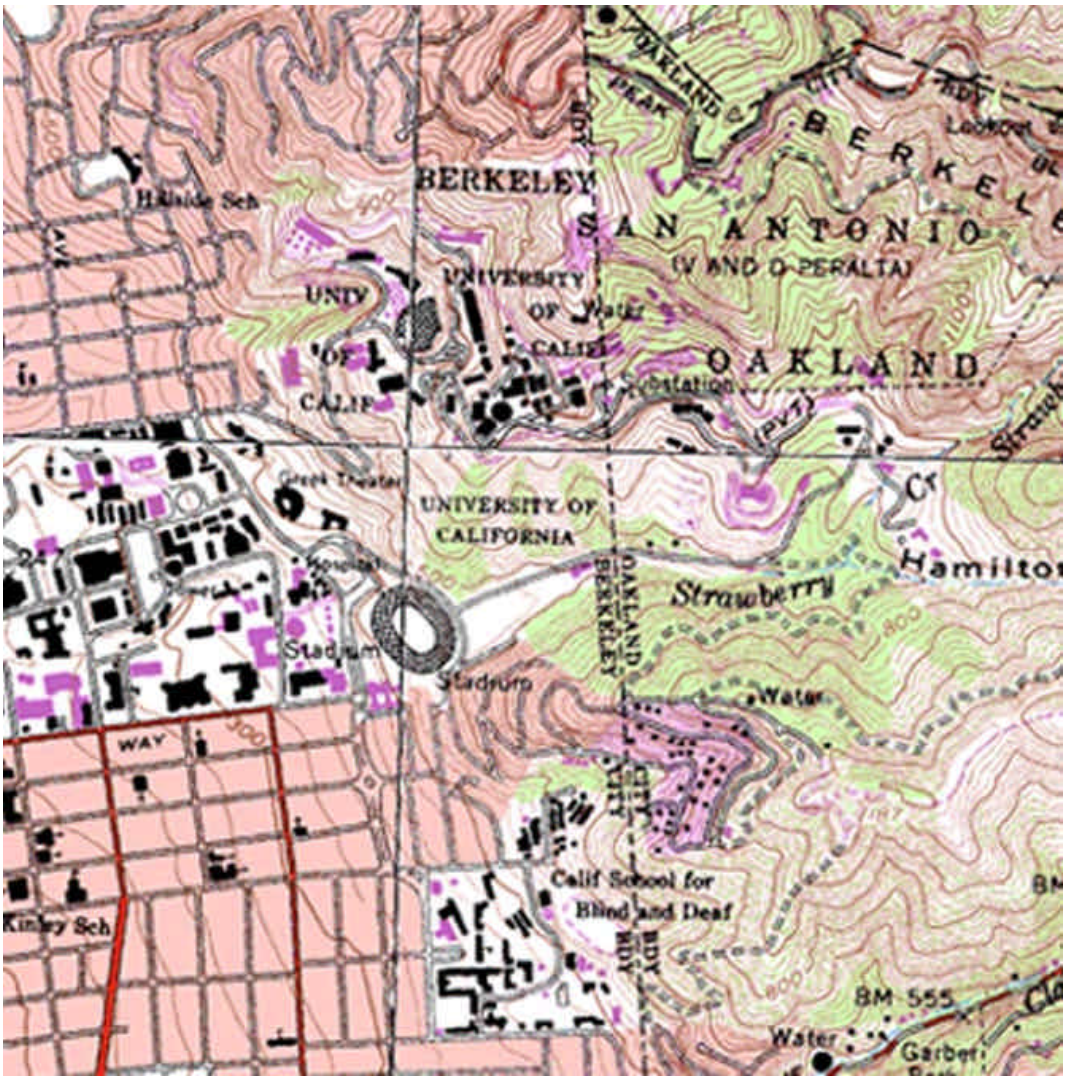
Mitigation Measure	IS/MND Reference Page	Mitigation Measure	Monitoring Milestone	Party Responsible for Monitoring	Verification of Compliance	
					Date	Remarks
BIOLOGICAL RESOURCES						
Molecular Foundry MM-3	Page 62	All lay-down and deposition areas shall be inspected each morning by the designated monitor to ensure that Alameda whipsnakes are not present. All construction activities that take place on the ground shall be performed in daylight hours. Vehicle speed on site shall not exceed 15 miles per hour. Construction materials, soil, construction debris, or other material shall be deposited only on areas where vegetation has been mowed and any snakes present would be readily visible.	During project excavation and construction until construction areas are paved or built upon.	Molecular Foundry Project Manager		
Molecular Foundry MM-4	Page 62	The site is subject to annual vegetation management involving the close-cropping of all grasses and ground cover on the project area; this management shall be done prior to initiation of construction. Re-mowing shall be done if grass or other vegetation on the project site becomes high enough to conceal whipsnakes during the construction period.	Prior to project excavation and construction until construction areas are devoid of vegetation.	Molecular Foundry Project Manager		

Mitigation Measure	IS/MND Reference Page	Mitigation Measure	Monitoring Milestone	Party Responsible for Monitoring	Verification of Compliance	
					Date	Remarks
CULTURAL RESOURCES						
Molecular Foundry MM-5	Page 68	To further reduce a less-than-significant impact: If an archaeological and paleontological artifact were discovered on-site during construction, all activities within a 50-foot radius would be halted and a qualified archaeological / paleontological monitor would be summoned within 24 hours to inspect the site. If the find were determined to be significant and to merit formal recording or data collection, time and funding would be required to salvage the material. Any archaeologically important data recovered during monitoring would be cleaned, catalogued, and analyzed, with the results presented in a report of finding that satisfies professional standards.	During excavation, as necessary.	Molecular Foundry Project Manager		

APPENDIX D

SUPPLEMENTAL FIGURES

Project Area Context – Aerial Photograph



Project Area Context – USGS Map

Visual Simulation of Project Site from nearby Panoramic Hill Residences

APPENDIX E

TOXIC AIR CONTAMINANT ANALYSIS METHODOLOGY

Environment, Health & Safety Division

22 November, 2002

MEMORANDUM

To: Nancy Ware
Ops: General Counsel

From: John Seabury
Environment, Health & Safety Division

Subject: Molecular Foundry: Toxic Air Contaminants

A few days ago Jeff Philliber asked me if the proposed Molecular Foundry project would be likely to result in any appreciable emissions of Toxic Air Contaminants (TAC's). To answer this question, I compared the chemical inventories for the Molecular Foundry against the Bay Area Air Quality Management District list of Toxic Air Contaminants (TAC's).

Based upon the assumptions and methodology I used (detailed below), there will be no appreciable emissions of Toxic Air Contaminants from the building. The assumptions used for screening are wildly conservative, and for the most part the predicted screening emissions would be several orders of magnitude below BAAQMD emissions thresholds or "trigger levels". For a few chemicals the screening emission levels do approach or exceed the BAAQMD trigger levels, however when the nature and use of these chemicals is further analyzed it is clear that that the screening assumptions are invalid and that there will be no appreciable emissions.

Assumptions and Methodology

The basic methodology used by BAAQMD for regulatory action is to compare the predicted emissions of a Toxic Air Contaminant from a source (the Molecular Foundry would be considered a "source") against a screening "trigger level" for that TAC. If the emissions from that source exceed the trigger level published by the District for that TAC, then a Risk Assessment based upon the actual source and emissions level is required. If the risk exceeds a BAAQMD standard, both a permit to operate and emissions control are required.

Research operations such as will be performed in the Molecular Foundry are widely variable, generally small scale, and often unpredictable (that's what research is: doing what has not been done before). As such, it is difficult to predict emissions for research operations. Inference can be drawn, however, from the types and quantities of chemicals that are stocked in the facility. For purposes of this screening study, the following methods and assumptions were used:

1. Chemicals in the building are the types and amounts identified by the occupants in a spring, 2002 survey. In this survey, the future occupants were asked what laboratories at LBNL and at UCB were presently doing the type of work that will be performed in the Molecular Foundry. The chemical inventories for these existing spaces were then assembled and assigned to the applicable spaces in the new building. Thus, for screening purposes the assumption is that the existing laboratories will be transferred complete to the new building[17]. This is a very conservative assumption; in fact what will happen is that a *subset* (at present unquantified) of the existing laboratories will be *duplicated* in the new building; there will not be wholesale movement of laboratories, and in fact unused chemicals that appear in the present inventories will not be reordered for the new laboratories.

2. BAAQMD emissions thresholds for TAC's are set in terms of total pounds per year emitted. Thresholds for each toxic air contaminant were established based upon its toxicity characteristics. To compare inventory in the building with operational emissions it is necessary to assume a rate at which the inventory is consumed by operations. For purposes of screening, it was assumed that 100% of the inventory of chemicals would be turned over in a year's time. This is again a very conservative assumption; in general chemicals (especially solids) are kept in stock, and often (for example) a pound of a chemical is only used grams at a time when it is used at all. LBNL has found that the average turnover rate for chemicals in inventory is several years.

3. It is also necessary to assume what proportion of the chemicals used are actually emitted to the air (as opposed to consumed, recovered or disposed of as waste). For purposes of this screening, the first assumption was that 100% of the amount used would be emitted (i.e., 100% volatility).

4. The chemicals in the building were compared against the BAAQMD list of Toxic Air Contaminants, which lists common chemical names, their Chemical Abstracts System (CAS) number, and emissions thresholds. A CAS number is unique to a chemical structure. The BAAQMD list did have a couple of obvious mistakes in CAS number assignment which were corrected, although no attempt was made to validate the BAAQMD list in its entirety.

5. For purposes of this screening, it was assumed that predicted emissions below the BAAQMD "trigger levels" are de minimus and can be ignored.

Results and Discussion

The derived "screening ratio" is defined as the predicted emissions based upon the above very conservative assumptions (lb/year) divided by the BAAQMD "trigger level" (lb/year). Chemicals with "screening ratio" less than 0.1 were not analyzed further. Chemicals with "screening ratio" greater than 0.1 were examined to determine the applicability of the above assumptions.

The screening produced results greater than unity as noted in Table 1.

[17] This is an operational assumption that is consistent with other hazardous materials-based analyses connected with this project.

Table 1 Chemicals with Screening Ratios >= 1.0		
Chemical	Screening Ratio	Discussion
Beryllium and beryllium compounds	78.7	These chemicals are all metals or metal salts. They are non-volatile, and research operations are known to not create particulate emissions. The screening ratios are high not because of high amounts in use, but because of the toxicity of the emissions. Actual amounts of these metals emitted will be so small as to be immeasurable: when used in reaction they are either consumed or else recovered and disposed of as hazardous waste.
Cadmium and cadmium compounds	14.3	
Nickel and nickel compounds	13.6	
Arsenic and arsenic compounds	4.40	
Hydrazine	28.3	This is a highly reactive chemical that is totally consumed in whatever reaction it is added to. Negligible emissions of this material are anticipated.
Acrylonitrile	1.64	This organic solvent is used either for extractions (and is completely recovered) or as feedstock for chemical synthesis (and is completely consumed). Negligible emissions are anticipated.
Acrylamide	1.61	This highly reactive solid is non-volatile; when used it is polymerized into polyacrylamide and is also non-volatile. Negligible emissions are anticipated.

The screening also resulted noted several chemicals whose screening ratio approached unity. Chemicals whose screening ratio was between 0.1 and 1.0 are shown in Table 2.

Table 2 Chemicals with Screening Ratios 0.1 - 1.0		
Chemical	Screening Ratio	Discussion
Manganese and manganese compounds	0.114	These are also metals or metal salts. Comments in Table 1 apply.
Ethylene dibromide	0.817	These organic materials are used within closed or semi-closed systems. Because of the precision of the synthetic or analytical techniques in which these materials are used, the vast majority (well in excess of 99%) of the material not consumed in chemical reactions is recovered and disposed of as hazardous waste. No appreciable emissions are anticipated.
Acrolein	0.621	
Ethylene dichloride	0.380	
Benzene	0.349	
Benzyl chloride	0.313	
Formaldehyde	0.100	

Conclusions

Based on current chemical inventories for laboratories at UCB and LBNL that would have space in the new Molecular Foundry building, even if the entire inventory of chemicals were sent up the stack (a virtually impossible scenario, physically), the emissions for the vast majority of the chemicals identified as Toxic Air Contaminant would not approach the "trigger levels" for action defined by BAAQMD (i.e., permit to operate, emission controls). For fourteen chemicals, emissions predicted using these assumptions do approach or exceed the "trigger levels", however upon examination it is clear that the conservative assumptions in the prediction are not valid. No appreciable emissions of Toxic Air Contaminants are likely from the Molecular Foundry project.

The above conclusions are based upon information available as of the date of this document. Although no change in conclusions is anticipated, BAAQMD regulations and the predicted inventory of materials in the building may change.

Please don't hesitate to contact me with further questions.

JJS/jjs

cc: Ron Pauer, EHS
Pat Thorson, EHS
Jeff Philliber, Facilities Planning
Jim Krupnick, Molecular Foundry
Joe Harkins, Molecular Foundry